PROPOSAL FOR PRIORITY SETTING FOR EXISTING SUBSTANCES ON THE DOMESTIC SUBSTANCES LIST UNDER THE *CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999*

GREATEST POTENTIAL FOR HUMAN EXPOSURE

Health Canada

2003

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The following reports constitute supporting documentation to this proposal:

- *Report on Workshop to Consider DSL Industrial Sector and Functional Use Codes as Indicators of Potential Human Exposure*, 1st Workshop (Government Experts), May 30, 2000.

- *Report on Workshop to Consider DSL Industrial Sector and Functional Use Codes as Indicators of Potential Human Exposure*, 2nd Workshop (Industry Experts), October 18, 2002.

- E. Doyle, H. Patterson, *A Study to Determine Currency of DSL Quantity Data for Use in Categorization of DSL Substances*, Report prepared by Exposure Assessment Section, Existing Substances Division, Health Canada, August 2001.

The above documents are available from the Existing Substances Division website at <http://www.hc-sc.gc.ca/exsd-dse> or on request from:

Existing Substances Division
Bureau of Environmental Contaminants
Safe Environments Programme
Health Canada
Environmental Health Centre, Room 145
Tunney's Pasture
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List of Acronyms and Abbreviations

bw	body weight
CAS	Chemical Abstracts Service
CEPA 1988	1988 *Canadian Environmental Protection Act*
CEPA 1999	*Canadian Environmental Protection Act, 1999*
CPI	Chemical Product Index
DSL	Domestic Substances List
EPA	Environmental Protection Agency (U.S.)
GPE	greatest potential for exposure
HPV	high production volume
ICCA	International Council of Chemical Associations
IUR	Inventory Update Rule
OECD	Organisation for Economic Co-operation and Development
PSL	Priority Substances List
Q	estimated annual quantity of use
S	number of submitters
SIDS	Screening Information Dataset
SNAc	Significant New Activity
TSCA	*Toxic Substances Control Act*
U	sum of use code indices
UVCB	substances of unknown or variable composition, complex reaction products and biological material

1. Introduction

The ***Canadian Environmental Protection Act, 1999 (CEPA 1999)***[1] requires ***categorization (Section 73)*** of all of the approximately 23 000 ***substances*** on the ***Domestic Substances List (DSL)*** prior to a legally mandated deadline of September 14, 2006 (Government of Canada, 1999). This proposal outlines the first stage of priority setting for the requirement under the legislation for Health Canada to identify (i.e., "categorize") those substances on the DSL that present the ***greatest potential for exposure (GPE)*** to Canadians. It is being released for a comment period to solicit input on both technical and management aspects relevant to its refinement and completion.

As this is the first stage, there is a likelihood of additional stages to further refine priorities prior to the 2006 deadline for categorization. More discriminating stages of priority setting in GPE categorization, although not yet fully developed, are also outlined briefly to provide contextual reference, to encourage voluntary submission of relevant data for consideration and to solicit input on the proposed path forward.

In considering this proposal, it is important to understand the limited objective of categorization in the overall mandate for ***Existing Substances*** under CEPA 1999. There are two additional phases of more detailed assessment for substances prioritized (categorized) for further consideration: namely, ***screening (Section 74)*** and ***Priority Substances (Section 76)***. Also, within the categorization phase, there is another independent stream that prioritizes substances primarily on the basis of environmental impacts (i.e., compounds considered to be persistent or bioaccumulative in the environment and inherently toxic to humans or to non-human organisms). Additionally, there are other streams through which substances can be prioritized for assessment: reviews of decisions of other jurisdictions (***Section 75***), nominations to the Priority Substances List (PSL) and advice provided to the Ministers of Health and the Environment by expert panels.

In the interest of soliciting additional relevant information to permit refinement prior to 2006, a draft list of initially prioritized substances is included in Appendix A. Inclusion on this list does not imply that these substances are the most hazardous or that exposure should be avoided; it simply indicates that they would be prioritized for additional consideration based on the criteria for the first stage of GPE prioritization delineated in this proposal.

This is the first of three proposals that will be issued for public comment in relation to Health Canada's responsibilities for categorization under CEPA 1999. A second proposal addressing priority setting for inherent toxicity to humans will be issued shortly. Based on comments and information received in response to both of these proposals, and taking into account additional stages of iterative priority setting that continue to be developed, a final integrated approach to categorization for both GPE and inherent toxicity to humans will be issued in the fall of 2005.

[1] Terms identified by bolding and italics the first time they appear in the text are defined in the glossary (section 7).

Written comments, which will be taken into consideration in revision of the proposal, should be submitted prior to March 31, 2004 to the Existing Substances Division website at <http://www.hc-sc.gc.ca/hecs-sesc/exsd/cat_dsl2.htm>. Comments can also be submitted to:

Existing Substances Division
Bureau of Environmental Contaminants
Safe Environments Programme
Health Canada
Environmental Health Centre, Room 145
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2. Content

Initially, the proposal for the first stage of priority setting for greatest potential for exposure (section 3) is outlined in the context of its limited objective and the principles and process by which it was developed. This is followed by an indication of potential next steps (section 4) and an invitation to comment (section 5), which includes specific relevant questions for consideration to focus the attention of the reviewers, although comment on all aspects of the proposal is invited. Background information is then presented (section 6) to set the context of relevant requirements under CEPA 1999 and the relationship of this component of the program with iterative subsequent stages of fuller health assessment of Existing Substances. A glossary (section 7) is included to explain important terms in the report; these terms are identified in the text by bolding and italics. References cited in the text are listed in section 8.

Substances that have been initially prioritized by the proposed approach are presented in Appendix A. Appendix B lists DSL functional use and industrial sector codes (use codes and DSL codes for quantity of use ranges), whereas Appendix C describes the derivation of and lists the use code ranking indices. Supporting documentation includes the reports of two workshops in which the exposure potential of individual use codes was ranked and *A Study to Determine Currency of DSL Quantity Data for Use in Categorization of DSL Substances*.

3. Proposal for the First Stage of Priority Setting for Greatest Potential for Exposure

3.1 The Limited Objective

While there are several other streams by which Existing Substances can be prioritized for assessment, categorization of substances on the DSL is unique in that it is the only stream for assessment that makes provision for systematic consideration of *all* Existing Substances in Canada to establish priorities for further work (e.g., data generation and assessment). For this

reason, the proposal outlined below embodies the principle that all substances should be treated equally to ensure that there is no bias preventing further consideration of substances for which data are currently limited or unavailable. This approach fulfils the fundamental objective of the categorization provisions of CEPA 1999 to avoid continued emphasis on the limited numbers of Existing Substances for which there is information on exposure and effects. However, this does not preclude additional data being taken into consideration in subsequent priority-setting stages before the 2006 deadline for categorization.

Hence, the proposed first stage of priority setting in the GPE categorization is simple and pragmatic to ensure that all substances are addressed, based on comparable existing information. This information, which derives from that submitted at the time the DSL was compiled, is limited. Indeed, it is the constraints under which the DSL was compiled and the limitations of the information submitted at that time that constitute some of the most significant shortcomings of this proposal (Environment Canada, 1988).

Information for each substance on the DSL is restricted to the following:

- Chemical Abstracts Service (CAS) registry number;
- chemical name (CAS naming convention);
- names of organizations or persons notifying information (***submitters***);
- codes representing the functional use of a particular substance (***functional use codes***) and/or the industrial sector in which it was used (***industrial sector codes***) (Appendix B, Table B1); and
- a coded estimate of the quantities of a particular substance in use (manufactured, imported and used in Canada) during the reporting period defined in the Act (1984–1986), as supplied by each submitter in codes representing order-of-magnitude ranges (Appendix B, Table B2).

The limitations of the information available for each of the substances on the DSL preclude all but the crudest distinctions with respect to potential for exposure. However, the information does enable consideration of quantity in commerce, numbers of submitters and use codes. These criteria permit crude priority setting in the context of GPE in that they allow identification of substances produced or imported in the greatest quantities for which uses could be dispersive in the environment or which are used in products that come into direct contact with the general population. This offers an improvement over, for example, the single criterion of quantity, which has been used as the basis of priority setting for voluntary testing programs for existing substances internationally.

3.2 The Proposal

The proposal is based on three different lines of evidence, derived from the limited information provided for all substances on the DSL: namely, ***quantity*** (estimated annual quantity of use, ***Q***), ***number of submitters*** (***S***) and ***use*** (sum of use code indices, ***U***).

For quantity (Q), annual quantities of use were reported for each substance by each submitter in codes representing order-of-magnitude ranges. The high end of the range for quantity of use for each substance reported by each submitter was summed for all submitters, resulting in total quantities of use for each substance ranging from 0 to greater than 10^9 kg/year (10^6 tonnes/year). All 22 264 substances on the DSL were then ranked in descending order on this basis. Log quantities ranged from 8.4 to 0 (Figure 1).

All 22 264 substances on the DSL were also ranked in descending order on the basis of their number of submitters (S). The number of submitters ranged from 102 to 1 (Figure 1). This parameter was included on the premise that, if a substance is being used by a large number of submitters, then it is likely to have more widespread distribution in Canada than a substance used by a smaller number of submitters.

Development of the parameter related to use (U) was based principally on expert judgement. Individually, 33 experts were asked to rank each of the functional use and industrial sector codes as having "high," "medium" or "low" potential for exposure.[2] An expert-ranked index was subsequently developed for each of the functional use and industrial sector codes through summation of the number of experts reporting each of "low," "medium" and "high" potential for exposure multiplied by scaling factors of 1 for "low," 10 for "medium" and 100 for "high." This index was then normalized to a scale between 1 and 100 by dividing by the number of participants. The order-of-magnitude scaling factors, although principally arbitrary, were chosen to increase the spread of values for the indices of use and to bias the weighting to those uses considered by experts to have the greatest potential for exposure.

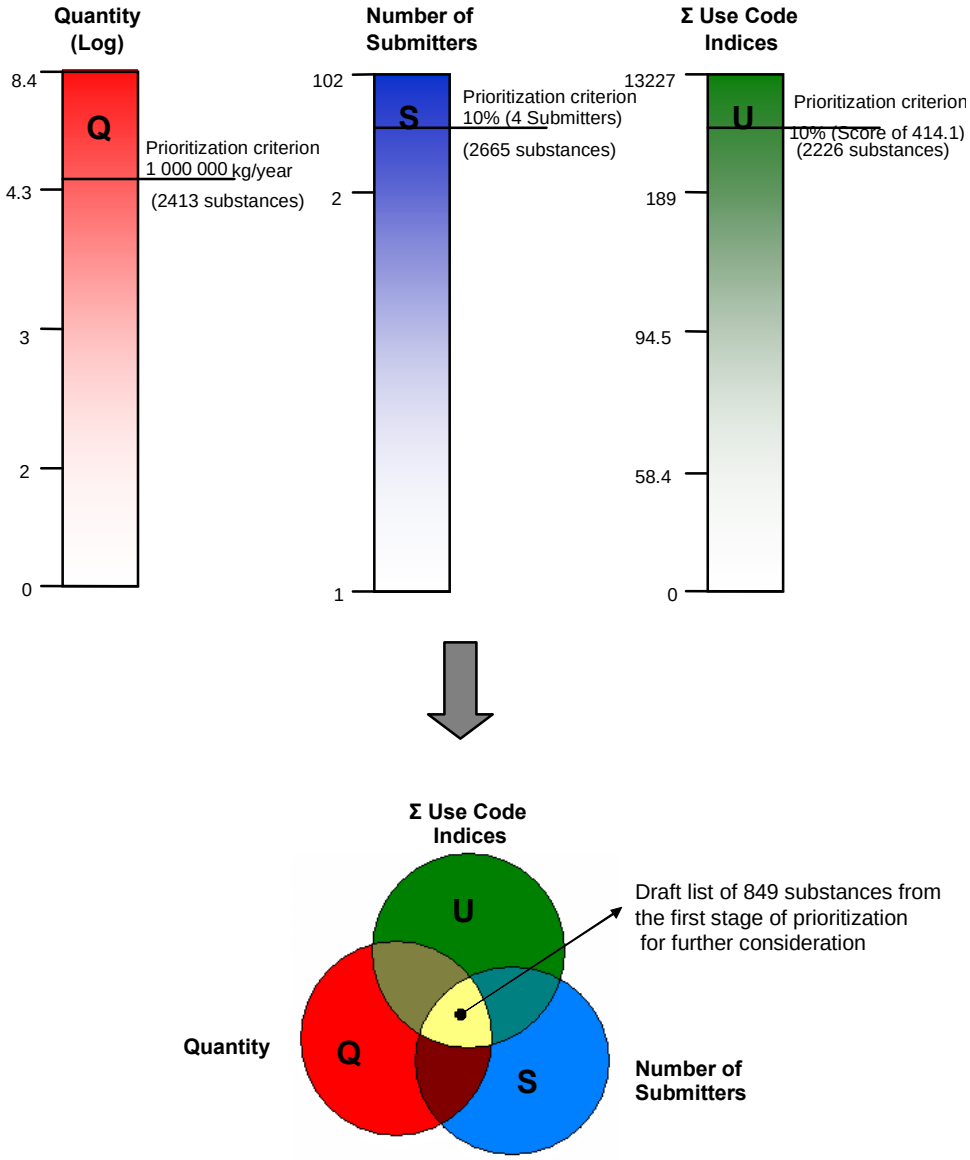
For use (U), all 22 264 substances on the DSL were ranked in descending order on the basis of their sums of normalized indices of expert-ranked functional use and industrial sector codes for each substance. The sum of the use indices for each substance ranged from 13 227 to 0 (Figure 1).

The criteria for initial prioritization proposed for each of these lines of evidence are quantity of use (Q) ≥1 000 000 kg/year (2413 substances); the top 10% of the rank order of the number of submitters (S) (≥4 submitters) (2665 substances); and the top 10% of the rank order of indices of use (U) (score ≥414.1) (2226 substances). Substances would be considered as priorities for further consideration only if they met the criteria for each of the three lines of evidence (Figure 1).

A schematic representation of the proposed approach to the first stage of priority setting for GPE is presented in Figure 1.

[2] The workshop used the terms "greatest," "intermediate" and "least"; for clarity, the equivalent terms "high," "medium" and "low" are adopted in this proposal.

Figure 1: Schematic representation of the proposed first stage of priority setting for GPE



3.3 Basis for the Criteria for the Initial List of Prioritized Substances

The proposed criterion for quantity (Q) is consistent with those adopted internationally. This aspect is important in ensuring that the DSL program contributes to efficient use of global resources to address the significant task of setting priorities for testing and assessment of all Existing Substances. However, limitations of reporting for the DSL preclude meeting this objective fully.

Based on the proposed procedure for the estimation of Q, the numbers and proportions of substances in each quantity range are presented in Table 1. The DSL quantities are reported in order-of-magnitude ranges, and the high end of the quantity range for each substance reported by each submitter was summed for the total quantity for a particular substance. Hence, a value of ≥1 000 000 kg/year prioritizes for further investigation all substances that were definitely in use at over 100 000 kg/year based on 1986 submissions. On this basis, 2413 (10.8%) of the 22 264 substances on the DSL met or exceeded this criterion for prioritization. (In other words, the numbers of substances in the quantity ranges designated by codes F and G in Table 1 constitute those in use at over 100 000 kg/year in Canada. This is due to the total quantities for each substance representing the sums of the maximum values from the order-of-magnitude ranges reported by each submitter for each use code.)

Table 1: Distribution of substances on the DSL by quantity code (1986 data)

Code	Quantity range (kg)	Number of substances in quantity ranges using proposed procedure	% of substances in quantity ranges
G	Over 10 000 000	1198	5.4
F	1 000 000 – 10 000 000	1215	5.4
E	100 000 – 1 000 000	2354	10.6
D	10 000 – 100 000	5094	22.9
C	1 000 – 10 000	5231	23.5
B	100 – 1 000	763	3.4
A	Under 100	3827	17.2
N	Nil[a]	2582	11.6

[a] Substance did not meet eligibility criteria in 1986, but did meet eligibility criteria in 1984 or 1985. No import, manufacture or in-commerce activity in 1986 (i.e., substance quantity was zero). Used where import amount or manufacture amount exceeded 100 kg in 1984 or 1985, but was less than 100 kg in 1986.

The proposed criterion for Q is aligned to the extent possible with the quantities that define high-production-volume (HPV) chemicals in voluntary testing programs internationally: namely, the HPV Chemical challenge program of the U.S. Environmental Protection Agency (U.S. EPA) and the International Council of Chemical Associations (ICCA) HPV working list. For the former, the relevant criterion for inclusion is production or import in volumes greater than 1 000 000 lbs./year (approximately 450 000 kg/year); for the latter, this value is greater than 1000 tonnes/year (1 000 000 kg/year). The proposed criterion is also consistent with the approach proposed by the European Commission in its REACH plan (European Commission,

2003); the European Commission will require all substances produced in quantities of greater than 100 tonnes/year (i.e., 100 000 kg/year) to be evaluated, which is similar to the criterion proposed here that prioritizes all substances definitely in use at over 100 000 kg/year.

The proposed criteria for S (number of submitters) and U (use) are arbitrary, but consistent with that adopted for Q (quantity of use). The value proposed is the top 10% of all substances on the DSL ranked in descending order on the basis of each of these parameters. The result is 2665 substances being prioritized based on the number of submitters (S) and 2226 substances being prioritized based on the sum of weighted use code indices (U). Although the choice of 10% for these parameters is arbitrary, the number of DSL substances that are prioritized in each case is similar to the number prioritized under the criterion for quantity (Q) (2413 substances, 10.8%).

3.4 Principles and Process by Which the Proposal Was Developed

The proposed approach makes maximal use of the limited data available for all substances on the DSL, drawing separately on as many different lines of evidence as possible. Substances will be considered as priorities for further consideration only if they meet the criteria proposed above for each of the three lines of evidence: namely, quantity (Q), number of submitters (S) and use (U) (Figure 1). This offers considerable advantage over existing prioritization schemes in international testing initiatives, which are based solely on volume of production. Owing to the limitations of data available for all substances on the DSL, no other independent lines of evidence were identified.

With the exception that expert judgement is incorporated in the development of the parameter for use (U), the proposal is based on "mechanically" generated indices for prioritization. This does not preclude consideration of additional expert judgement in potential subsequent stages of refinement.

Of the three lines of evidence suggested as a basis for initial priority setting in this proposal, expert judgement was incorporated only in the development of the expert-ranked normalized indices of use (U). In developing the indices, two workshops were organized, for which the reports are available as supporting documentation. An expert-ranked use code index was developed based on the degrees of consensus that each use code reflected "high," "medium" or "low" potential for exposure based on predefined criteria. The methodology by which the indices were developed, based on the conclusions of the workshops, and a list of these rankings are provided in Appendix C.

In the derivation of this index, the weighting of the expert judgements representing "low," "medium" or "high" potential for human exposure is primarily arbitrary. These three categories were weighted in 10-fold increments — i.e., 1 for "low," 10 for "medium" and 100 for "high." The increment was selected to increase the spread of values for the indices of use and bias the rank order values to those uses considered by experts to have greatest potential for exposure. This latter reason is consistent with the objective to identify highest quantity substances for which uses are dispersive in the environment or which come into direct contact with the general population.

3.5 Nature of Substances Prioritized for Further Consideration

Application of the approach advocated within this proposal results in 849 substances being initially prioritized for further consideration. (These substances are listed in Appendix A by chemical class.) The distribution of the different types of substances prioritized on this basis is presented in Table 2.

Table 2: Types of substances initially prioritized for further consideration by the approach outlined in the proposal

Chemical category[a]	**Top 10%**	
Organic	314	37%
Inorganic	149	18%
Organometallic	3	<1%
Organic-metal salt	5	<1%
Polymer	111	13%
UVCB	267	31%
Total	**849**	**100%**

[a] Chemical categories are defined in the Glossary (section 7).

While the substances included in Appendix A seem reasonable priorities for initial consideration, it is also important to recognize the broader value of the methodology presented in this proposal in priority setting based on initial consideration for all substances in the Existing Substances Program. Consistent with the longer-term objective to consider hazard and risk for all Existing Substances, the methodology is also relevant to development of additional tiers of priority setting. For example, the next highest priorities for consideration might be those for which the criterion for Q is selected as 100 000 kg/year. If applied along with the other two criteria for S and U in this proposal, an additional 407 substances would be prioritized for further consideration. This would include all substances definitely in use in Canada at over 10 000 kg/year, because of the summation of the high end of order-of-magnitude quantity ranges.

3.6 Confidence and Limitations

Alternatives Considered

The option presented here was that preferred based on consideration of a series of alternatives. In one of two other alternatives considered, each of quantity (Q), the number of submitters (S) and the sum of the normalized indices of expert-ranked use codes (U) for each substance was ranked in descending order (from 22 264 to 1). For each substance, the ranking for each of these parameters was summed (Q + S + U), and the substances were then ranked in descending order of the combined score. Substances were prioritized for further consideration if they had a score above 90% of the theoretical maximum score (n = 1399 substances). While this approach draws on all three lines of evidence, it does not do so maximally. Substances that score very high on two criteria but only in approximately the top 30% on the third are prioritized for further consideration.

In an additional option considered, the criteria for prioritization varied. The number of submitters (S) was ranked in descending order, and those for which the value was ≥4 were prioritized. The criterion for total quantity (Q) was 100 000 kg/year. For the sum of the use code indices, an expert-ranked index value of ≥70 was selected to represent use codes with high dispersive use, and a criterion for prioritization of 299 was established by multiplication of this value by the average number of use codes for the substances on the DSL (4.26). Then, for each substance, only submitted use codes with indices greater than 70 were summed, and only substances with a total score ≥299 were prioritized for this line of evidence. This resulted in 1531 substances common to all three lines of evidence prioritized for further consideration. While this alternative also draws on all three lines of evidence, it does not maximize use of the information on use patterns and is based on additional subjective judgement about which use codes represented high dispersive use.

Weighting of the use codes by accompanying data on volume of use and allocating volumes across the submitted use codes were also considered. These approaches were abandoned because they did not maximize drawing from different lines of evidence, leading to double counting of quantity. This created bias to prioritization of higher-quantity substances, excluding those with lower reported quantities but higher use code indices. The approaches also required many arbitrary decisions resulting from the limitations in the manner in which use codes and quantities were reported in the compilation of the DSL.

Confidence Validation

Compounds identified on the basis of this proposal are consistent with those expected based on its limited objective and constitute reasonable initial priorities for further consideration. The limited objective of this proposal, as stated above, was to prioritize, on the basis of similar information available for all substances on DSL, those substances produced or imported in the greatest quantities for which uses could be dispersive in the environment or which come into direct contact with the general population. For the subset of 849 substances (3.8%) prioritized based on application of the approach within this proposal, Table 3 presents the number of

substances for which the top 20 use code indices (Appendix C) were reported by one or more submitters. Information in the table supports prioritization, on the basis of the proposal, of substances for which uses could be dispersive in the environment or which are used in products that come into direct contact with the general population.

Table 3: Number of substances prioritized by the proposed approach according to the 20 use codes ranked highest for exposure potential

Use code	Description	Use code index	Number of substances
22	Fragrance/perfume/deodourizer/flavouring agent	94.55	395
46	Surfactant – detergent/emulsifier/wetting agent/dispersant	86.36	229
93	Soap and cleaning products	85.19	305
53	Agriculture, field crops	82.29	52
44	Solvent/carrier	80.91	256
82	Petroleum and natural gas	78.81	328
23	Fuel/fuel additive	78.18	110
31	Pesticide/herbicide/biocide/disinfectant/repellant/attractant	78.18	72
39	Preservative	77.91	34
60	Cosmetics	73.29	175
65	Food, feed, and beverage	72.71	165
81	Pest control products, formulating and manufacture	70.39	65
30	Paint/coating additive	69.18	285
63	Fertilizer	67.77	46
91	Refined petroleum and coal products	67.77	188
64	Forestry/wood products/wood treatment	66.90	20
13	Colourant – pigment/stain/dye/ink	66.73	224
97	Water and waste treatment	64.58	120
54	Agriculture, other	63.13	51
83	Pharmaceuticals	61.39	124

Substances prioritized also overlap with those being considered in international initiatives. Of the 849 substances that would be prioritized based on this proposal, 549 (65%) are included on either the ***U.S. EPA HPV Challenge Program List*** (463 substances, 55%) or the ***ICCA HPV 2003 Working List*** (313 substances, 37%) (Appendix A). The numbers of each type of substance not on either of these lists (in 2003) are organics (30), inorganics (73), polymers (104), UVCBs (93) and organic-metal salts (1). Differences are likely attributable principally to inclusion in this proposal of additional lines of evidence (i.e., U and S). Criteria in this proposal are also applied to all of the various types of substances on the DSL, including inorganics and polymers, which were excluded from other programs. The sizes of the source lists from among these initiatives also vary considerably.

There are limited possibilities to compare the output of this first stage of priority setting with the outcome of more complete assessments of exposure due, in part, to the limited availability of data to serve as a basis for such assessments and the lack of a requirement for quantitative multimedia exposure assessments in most jurisdictions. Indeed, the repository of multimedia exposure assessments for the first and second PSLs is the most robust and complete of the relevant databases identified.

To consider the robustness of the proposal for the first stage of priority setting, then, the absolute values and rank order for each of the lines of evidence in this proposal were compared with deterministic estimates of exposure (minimum, mean and maximum intake in µg/kg-bw per day) for each of 37 Priority Substances on the first and second PSLs for which this was possible. This information was analysed particularly with reference to those substances on the PSL that are prioritized on the basis of the proposal presented here (n = 30) versus those that are not (n = 7). Lack of prioritization of substances correlated roughly with very low deterministic estimates of exposure in the general environment (<1 µg/kg-bw per day) and no identified consumer product uses. Exceptions for PSL substances with high deterministic estimates of exposure that would not be prioritized by the approach presented here either were naturally occurring inorganic substances or could be attributed to likely considerable quantitative overestimates of exposure related to limitations of the database. To the limited extent to which it can be examined, then, the compounds captured based on the first-stage proposal presented here are considered to be true priorities for additional work.

Limitations

The most significant limitation of the current proposal relates to the potential lack of prioritization of substances that should be considered additionally in the context of potential risk to human health. However, it is likely that these substances will be prioritized for consideration through other streams within the Existing Substances Program.

The proposed approach does not identify for future work:

- substances whose major source is from articles or finished products imported into Canada, unless the reported quantities and uses in Canada during compilation of the DSL were sufficiently high to lead to their identification;
- substances primarily used or produced in industrial processes, which are released in effluents, emissions, wastes and by-products and are not used substantially in consumer products;
- environmental contaminants from releases of substances regulated under an Act of Parliament other than CEPA 1999 or that are present in Canada through long-range transport through the atmosphere or aquatic systems;
- substances produced as reaction or decomposition products from industrial or natural processes; and
- substances that have come into high quantity and/or widespread consumer use since the publication of the DSL as a result of technological change or response to market demands.

This limitation is a function of the fundamental premise underlying this proposal that, in the initial stages, all Existing Substances must be addressed in similar fashion to ensure that true priorities for both testing and assessment are identified. This necessarily limits the information available as a basis to set priorities and permits only crude priority setting in an exposure context.

However, this limitation is offset by other provisions under CEPA 1999 to identify priorities for assessment. Any substance not identified by the GPE proposal — for example, a substance within one of the groups identified above — could be identified and considered further under one or more of these alternative streams. For example, under Subsection 73(b), a separate stream of DSL categorization, substances are prioritized on the basis of potential for persistence and/or bioaccumulation and being inherently toxic to humans or non-human organisms. This stream is potentially more relevant to identification of candidate substances released in effluents, emissions, wastes and by-products. Similarly, through the same priority-setting stream, a DSL-listed substance in articles or products or present in Canada through long-range transport could be identified as a priority. Also under Section 75, the Ministers of Health and Environment are required to review decisions to specifically prohibit or substantially restrict any substance by or under the legislation of another jurisdiction for environmental or health reasons. Finally, under Subsection 76(3), any person may file in writing with the Minister of the Environment a request that a substance be added to the PSL, and the request shall state the reasons for adding the substance to the List.

The second most significant limitation of the proposal relates to the constraints under which the DSL was compiled and the limitations of the information submitted at that time. Although the information provides a basis for at least crude relative ranking of potential for exposure for all substances on the DSL, the nature and specificity of the submitted data on use codes and quantity of use were limited. For the use codes, this includes their relevance as a basis for consideration of potential for exposure and the potential lack of consistency in their application. Major ingredients of products may also not have been identified.

The functional use and industrial sector codes were not designed with the intent of identifying the potential for exposure of the general population. For example, use codes such as number 25 (humectant/dewatering aid/dehumidifier/dehydrating agent) are not specific in indicating use in consumer products or industrial use. Specificity of the information was also limited by a maximum number of use codes that could be submitted. Identification of substances that are major ingredients in products was also limited by the approach to compilation of the DSL.

Guidance provided on the interpretation and reporting of functional use or industrial sector codes in the compilation of the DSL was also limited, and there was considerable variation in reporting by different submitters. A significant fraction reported only one code for each substance (i.e., either a functional use or industrial sector code). Most reported two or three

codes distributed across functional use or industrial sector codes. For an individual substance, a variety of possible interpretations of use and, therefore, combinations of codes was possible. This may have resulted in some substances being over- or underrepresented in particular use or industrial sector categories.

With respect to the information on quantity of use, there are two major limitations. The first relates to the process by which the DSL was compiled, and the second to the reporting of the quantity of use in order-of-magnitude ranges only. The process by which the DSL was compiled (see "Domestic Substances List" in Glossary) may have led to the underreporting of quantities for some substances. In the compilation of the ***core DSL***, major Canadian companies nominated substances likely produced and/or imported in the highest quantities. Substances nominated with quantities between 100 and 1000 kg/year required no further nomination from other companies. The impact of this potential underreporting on priority setting is expected to be minimal, as the substances produced and/or imported in highest quantities were likely to have been reported by the larger companies in compilation of the core DSL.

The reporting of quantities of use in the compilation of the DSL in order-of-magnitude ranges only limits accuracy of the information on quantity of use (Q) as a basis for prioritization. Due to lack of point estimates of quantity of use, Q for each substance is based on summation of the high end of the quantity range reported by each submitter. This introduces bias to overestimation, since actual quantity could be any value within the reported range. The recommendation of the ≥1 000 000 kg/year criterion for prioritization also biases to conservatism, leading to the prioritization of more substances for further work than adoption of a less conservative value of 10 000 000 kg/year to capture substances definitely in commerce in Canada in 1986 at a quantity of over 1 000 000 kg/year.

The lack of currency of the information submitted during compilation of the DSL, which was based on data for the period of 1984–1986, is also a potentially significant limitation of this proposal. However, based on consideration of readily available information for a limited number of substances, quantities and patterns of use have not changed dramatically.

Data included in Chemical Product Index (CPI) profiles obtained from Camford Information Services for a selected list of 110 substances, including organic and inorganic substances as well as polymers, were compared with information submitted in the compilation of the DSL (see supporting documentation by Doyle and Patterson). These profiles provide both current and past supply and data on demand for chemical substances in Canada and are compiled on a regular basis based on both published trade data and industry interviews. Conclusions based on the analysis, reported in more detail in the supporting documentation, are that for only 7 of the 110 substances were there increases or decreases in supply greater than a single order of magnitude over the reporting period. The reporting periods were from 1986 to the most recent year for which data was provided for a particular substance, ranging from 1989 to 1999. The quantities reported in 1986 in the compilation of the DSL are considered reasonable initial estimates of those currently, with accuracy within at least one order of magnitude. The numbers

of Section 71 reports for substances in the DSL Pilot Project (Government of Canada, 2001a), completed at the time of posting of this proposal, were inadequate as a basis for meaningful comparison with the information included on the DSL.

The proposal, which is based on specified criteria for prioritization for Q, S and U, some of which are arbitrary, incorporates some expert judgement and arbitrary weightings and generates a subset of the DSL on which to focus further attention. Merits of this proposal need to be judged against the alternative of systematic compilation of more recent information from industrial stakeholders on the current use of all Existing Substances in Canada. In view of the significant resources and workload required to undertake such an exercise, the approach proposed here is favoured. It permits focusing of attention for information gathering or submission on a reduced list of substances prioritized as having greater potential for exposure to humans.

4. Next Steps

Potential additionally more discriminating steps of priority setting in categorization, although not yet fully developed, are outlined briefly below in order to provide contextual reference, to encourage voluntary submission of relevant information and to solicit input on the proposed path forward.

Substances prioritized for further consideration on the basis of this proposal that have been considered in PSL1 or PSL2, have been included in the pilot phase for screening assessments in the DSL program or are already on CEPA 1999 ***Schedule 1*** are indicated in Appendix A. For ease of reference, those included on the U.S. EPA and ICCA HPV lists are also indicated. Projected timelines for completion of voluntary testing on the substances in these programs are relevant to scheduling, particularly for substances still considered as priorities for further work beyond the 2006 deadline for categorization.

In total, 49 substances on the initial list have previously been assessed and/or subject to risk management. Further evaluation of these substances is not being proposed at this time. Thirty (30) of the substances have been reviewed in the PSL evaluation programs (PSL1 and PSL2) under the original ***Canadian Environmental Protection Act (CEPA 1988)*** or CEPA 1999, 27 substances are on Schedule 1 of CEPA 1999 and an additional 5 substances are on ***Schedule 3*** of CEPA 1999. An additional 19 substances are already under evaluation within the DSL pilot phase of screening assessments.

In subsequent stages and prior to the 2006 deadline for categorization, identification of priorities for additional work will be further refined. This will include consideration of both toxicity (at least crudely) and refined measures of exposure to ensure that substances prioritized are those likely to pose the greatest risk. The initial measure of toxicity to human health being considered in this context is that being developed for the other stream of categorization of the DSL, where substances considered to be persistent or bioaccumulative and “inherently toxic” to

human health are being identified. Cruder indicators, such as the "threshold of toxicity," are also being considered. In relation to additional refinement of exposure, crude quantitative estimates may be developed on the basis of generic scenarios for particular functional use and industrial sector codes for groups of substances with similar chemical structure and/or use.

Polymers could be further considered on the basis of criteria similar to those established in the New Substances Notification Regulations under CEPA 1999, which define those of low concern for human health (Government of Canada, 1994, 2001b). Other options also being considered include identifying all polymers on the DSL for which use in aerosols is likely. Both of these options require submission of additional information concerning the characteristics and use patterns of polymers, and a request for submission of a proposal concerning an envisaged mechanism of coordination of submission of relevant data has been sent to the CEPA Industry Coordinating Group.

UVCBs prioritized for further consideration on the basis of this proposal could be examined on a case-by-case basis. This examination, on the basis of expert judgement documented by a detailed and transparent rationale, would identify those that can be "set aside" from further consideration because of known low toxicity, those for which requests will be made to industrial stakeholders to provide additional information and those for which attempts will be made to identify additional relevant data on toxicity.

5. Invitation to Comment

Views and suggestions are invited on all aspects of the proposal. Specific aspects for which input would be helpful are outlined in the questions below. Written comments, which will be taken into consideration in revision of the proposal, should be submitted prior to March 31, 2004, as indicated above in section 1.

The following are some questions to guide commentary:

i) Is the proposed approach sufficiently transparent and discriminating with respect to how substances have been selected for further consideration in the first stage of priority setting?

ii) Does the proposed approach maximize the use of the available information for all substances on the DSL in identifying those with the greatest potential for exposure? If not, what other options should be considered?

iii) Can other information or data for all of the 22 264 substances on the DSL be identified that would be helpful in determining whether a substance should or should not be prioritized for further consideration on the basis of greatest potential for exposure?

iv) Are there reasons why any one of the three lines of evidence is inappropriate for use in the first stage of priority setting for greatest potential for exposure? Can you envisage other potential lines of evidence based on the limited information on each compound submitted in the compilation of the DSL?

v) Is equal weighting of the three lines of evidence, quantity (Q), number of submitters (S) and use (U), presented in this proposal appropriate, or can a preferred alternative be identified and justified?

vi) Do the proposed criteria for prioritization for each of the lines of evidence represent a reasonable compromise for establishing initial priorities for further consideration?

vii) Can you suggest specific approaches to additional priority setting for substances within the groups of organics, inorganics, polymers and UVCBs for compounds prioritized in the first stage? Can you identify relevant sources of information or supply relevant data?

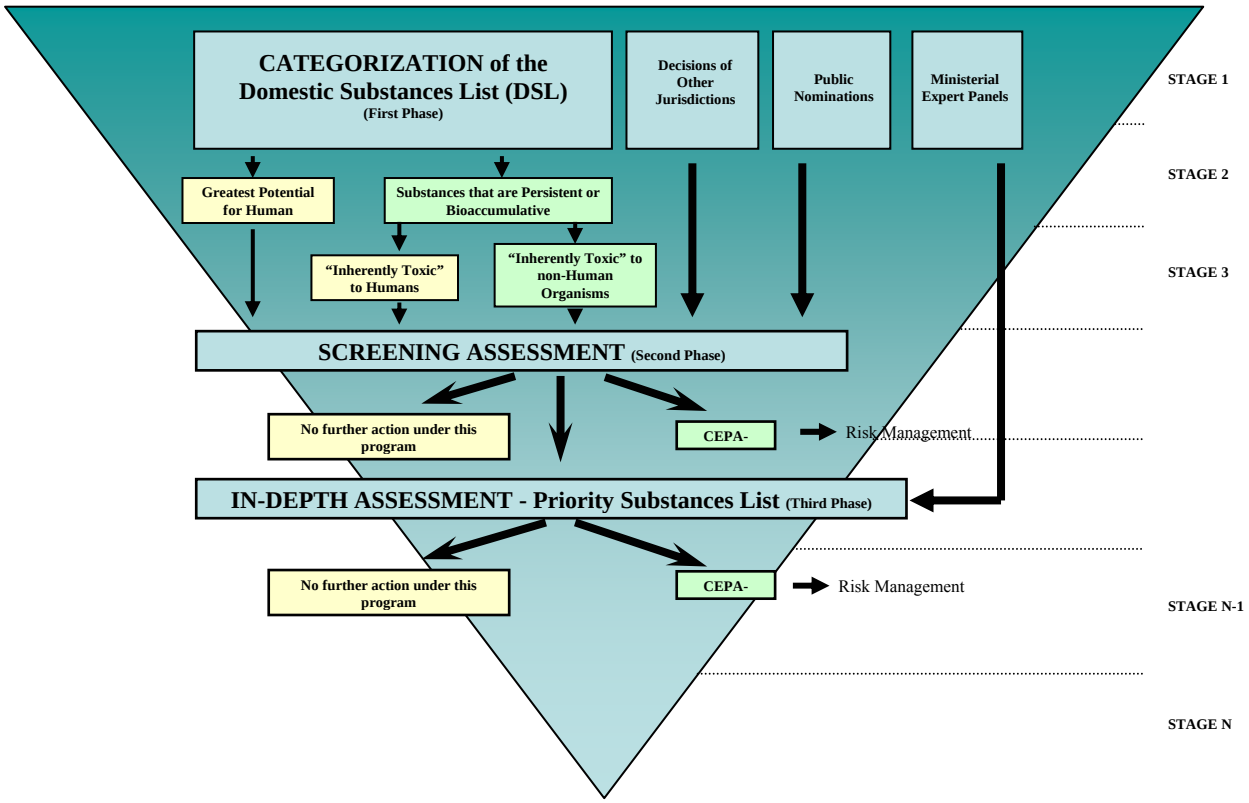
6. Background to CEPA 1999 Priority Setting for Health Risk Assessment for Existing Substances

The *Canadian Environmental Protection Act*, proclaimed in 1988 (CEPA 1988) and amended in 1999 (CEPA 1999), provides the primary authority and policy direction for the assessment and management of environmental contaminants in Canada. Among its many provisions, CEPA 1999 requires that the Ministers of Health and of the Environment take action with respect to the control or management of toxic substances that may already be present in the Canadian environment (i.e., Existing Substances). The Act provides the framework for the identification/prioritization of Existing Substances for risk assessment and the control or management of those considered to pose a risk to human health and/or the environment. This framework is broad, evidence-based, open and transparent and builds upon work done in other jurisdictions.

The mandate respecting Existing Substances has been vastly expanded under the renewed CEPA 1999 and specifies four ways in which Existing Substances may be identified for risk assessment (Figure 2):

- categorization of substances on the DSL;
- reviewing regulatory decisions of other jurisdictions;
- requests made directly to the Minister of the Environment; and
- advice provided to the Ministers of Health and of the Environment by expert panels.

Figure 2: The Existing Substances Program under CEPA 1999



In addition to the continuing requirement to establish and assess lists of Priority Substances, CEPA 1999 requires that the Ministers of Health and Environment complete "categorization" of all of the 22 264 substances on the DSL by September 2006, with subsequent screening and full assessment, where warranted. Canada is the first country to introduce this legislative requirement for a systematic and iterative approach to priority setting for risk management for all Existing Substances, although legislative proposals whose intent is similar have been developed in at least one additional jurisdiction (European Commission, 2003).

This requirement has been prompted in part by the earlier introduction of consideration of all ***New Chemicals*** (those not used in Canada between 1984 and 1986) under CEPA 1988 and similar legislation in other countries. It also logically extends experience gained during the selection of the second PSL (n = 25), which was based in part on systematic priority setting for a much larger subset of some 600 Existing Substances (Koniecki et al., 1997).

Under CEPA 1999, all 22 264 substances on the DSL must be categorized by September 2006 (Figure 2) to identify those that:

- may present, to individuals in Canada, the greatest potential for exposure; or

- are persistent or bioaccumulative and inherently toxic to human beings or to non-human organisms.

Health Canada has responsibility for determining substances with the "greatest potential for exposure" and those that are "inherently toxic to human beings." Environment Canada is responsible for determining which substances on the DSL are persistent and/or bioaccumulative and inherently toxic to non-human organisms.

To the extent possible, categorization will be based on available data; only in the subsequent screening and full assessment phases may testing be required under the legislation. This is primarily due to the large number of substances to be addressed and the relatively short mandated period for completion of the categorization phase.

The three iterative phases for priority setting for risk management of Existing Substances specified under CEPA 1999 (presented in Figure 2) are "categorization," "screening assessment" and "full (Priority Substances) assessment," representing increasing levels of complexity. As indicated in Figure 2, the objective for the latter two phases — namely, screening and full assessment — is to determine whether a substance is "***toxic***" under the Act, which sets the stage for adding the substance to Schedule 1 (the List of Toxic Substances) and for reviewing options for controlling risks to human health and/or to the environment.

As indicated in Figure 2, the second iterative phase of prioritization — namely, screening — will be conducted for substances that meet criteria for various aspects of categorization. All substances proposed for assessment will also be screened initially. The exact form and content of various types of screening assessments are still under development. As indicated in Figure 2, the principal objective of these screening assessments is to determine whether substances can be set aside (i.e., require no further action) or should be prioritized for full (i.e., Priority Substances) assessment or considered for risk management. In view of their limited objectives, therefore, decisions will be based principally on comparison of worst-case estimates of exposure and effect. If margins are wide, there would be no further action on the compound at this stage. If, however, margins are small, the substance would be nominated for inclusion on the PSL for preparation of a full assessment, based on more extensive analyses of available data. Recommendations based on the magnitude of the margins of exposure will take into full account confidence in the completeness of the identified databases on both exposure and effect, within a screening context. High-hazard substances may be considered "toxic" and prioritized for risk management.

CEPA 1999 does not impose a statutory deadline for completion of the screening assessments. There is a five-year mandated time frame for full (i.e., Priority Substances) assessments from the time of their addition to the PSL to completion.

CEPA 1999 incorporates several information-gathering provisions under which necessary information is and will be solicited from producers or importers to permit screening and full

assessments of Existing Substances. Data considered sufficient as a basis for assessment of hazard in a screening context for prioritized GPE organic substances will generally be similar to that included in the Organisation for Economic Co-operation and Development's (OECD) Screening Information Datasets (SIDS)[3] and consistent with requirements for New Chemicals under CEPA. For full (Priority Substances) assessments, more extensive testing may be required. Also, options are currently being considered — for example, for substances not currently used in Canada, based on information submitted in response to Section 71 surveys in a pilot phase for screening.

The documented approach to full (i.e., Priority Substances) assessments and their associated reports are available at the Existing Substances Division website: <http://www.hc-sc.gc.ca/hecs-sesc/exsd>.

While there are only three phases of priority setting and assessment referenced in CEPA 1999 (categorization, screening and Priority Substances), it is apparent that the systematic consideration of priorities for risk assessment and management for all Existing Substances in Canada will likely entail more iterative stages than these broadly defined phases. Each phase named within the legislation will likely entail one or more additional iterative stages of priority setting (Figure 2). These various stages are being developed simultaneously, with emphasis to date on the first stage of priority setting in categorization, various iterations of "screening" and, previously, Priority Substances.

For example, this proposal outlines the first stage for priority setting for GPE based on similar but limited information for all substances on the DSL. Priorities for further consideration will be additionally refined in subsequent stages prior to the mandatory deadline for categorization, likely based on consideration of both toxicity (at least crudely) and refined measures of exposure. This ensures that substances prioritized are those likely to pose the greatest risk. The number of iterative stages in categorization will be dictated in large part by the expediency with which additional relevant information can be secured.

Similarly, screening assessments will reflect various iterations of complexity, depending upon the nature of available data and the magnitude of and confidence in the margins between worst-case estimates of exposure and effect.

[3] The SIDS for mammalian toxicity includes acute toxicity and the combined repeated dose/reproductive toxicity screen and genetic toxicity (two endpoints, generally point mutations and chromosomal aberrations) (OECD, 2003).

7. Glossary

Canadian Environmental Protection Act, 1988 (CEPA 1988) — This was an Act of Canada proclaimed in force on 30 June 1988. It was replaced by CEPA 1999. CEPA 1988 consolidated selected provisions and laws administered by Environment Canada. It replaced the *Environmental Contaminants Act* of 1975 and subsumed the *Clean Air Act*, the *Ocean Dumping Act*, the nutrient provisions of the *Canada Water Act* and certain provisions of the *Department of the Environment Act*.

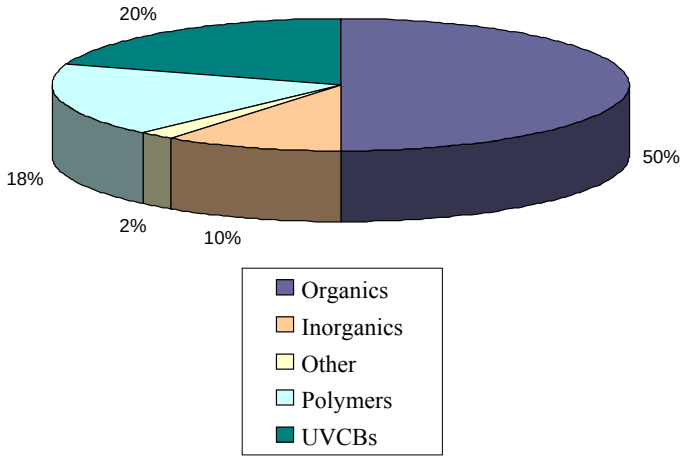
Canadian Environmental Protection Act, 1999 (CEPA 1999) — CEPA 1999 is an Act of Canada respecting the protection of the environment and human life and health.

Categorization (Section 73) — Under Section 73 of CEPA 1999, the Ministers of Health and of the Environment must categorize the substances on the DSL. The Minister of Health must categorize substances on the DSL to identify those that pose the greatest potential for exposure of the general population in Canada, as well as those persistent or bioaccumulative substances considered "inherently toxic" to humans. The Minister of the Environment must categorize substances on the DSL to identify those that are persistent or bioaccumulative and "inherently toxic" to non-human organisms. Screening assessments (see ***Screening (Section 74)***) will be conducted for substances meeting these criteria.

Core DSL — The core DSL is a preliminary version of the DSL published in August 1989, based on nominations received from the approximately 200 companies invited to report in Phase 1 reporting.

Domestic Substances List (DSL) — The DSL, which was published in 1994, is an inventory established primarily as a basis for distinguishing "existing" from "new" chemicals under CEPA 1988. It comprised originally of 22 264 substances that were, between January 1, 1984, and December 31, 1986, used for manufacturing purposes, manufactured in or imported into Canada in a quantity of 100 kg or more in any calendar year. Roughly half of the DSL is composed of organic substances and the remainder of inorganic substances, organometallic substances, polymers and UVCBs. The distribution of substances on the DSL is illustrated in Figure 3.

Figure 3: Types of substances on the DSL



Reporting for the DSL was carried out in two stages (Environment Canada, 1988). In the first stage, approximately 200 companies were contacted and asked to report substances they manufactured and/or imported in quantities greater than 100 kg/year during the reporting period. Their responses were used to compile a core DSL. In the second stage, manufacturers and importers that did not report in the first stage were asked to review the core list and report any substances that were not included on the list but were manufactured or imported during the reporting period; they were also required to report on any substances that were on the list and were manufactured or imported in quantities greater than 1000 kg/year. The results of the second stage were used to compile a provisional DSL, which, after review and corrections, became the current DSL.

Existing Substances — Existing Substances are those that appear on the DSL under CEPA 1988 published on May 4, 1994; see also ***New Chemicals***.

Functional Use Codes — See ***Use codes***.

Greatest potential for exposure (GPE) — Categorization for GPE is based on the interpretation that the intent of the legislation was to prioritize for subsequent phases of assessment those substances on the DSL that are used in Canada at the highest quantities and for which uses are dispersive in the environment or which come into direct contact with the general population, thereby leading to the greatest potential for exposure.

ICCA HPV 2003 Working List — ICCA has launched a global initiative on HPV chemicals. To qualify, the chemicals need to be considered HPV or otherwise of interest in two or more regions, although chemicals of interest in only one region are also sponsored if, for example, they are identified as priority chemicals by national and/or regional authorities and are HPV chemicals in at least one region; they are chemicals for which assessments in other programs had been started but were delayed at early stages; or they fit into a category of chemicals that can be assessed together. The latest ICCA list (August 2003) contains 1325 chemicals, and the 2002 ICCA list contained 1511; 1242 substances appeared on both lists. The latest list is available from <http://www.cefic.be/activities/hse/mgt/hpv/HPVlist2000.pdf> or <http://www.cefic.org/activities/hse/mgt/hpv/hpvinit.htm>.

Industrial sector codes — See ***Use codes***.

Inorganic — Inorganic substances include inorganic salts, metallic moieties of organic-metal salts and all well-defined substances that do not contain carbon, except certain simple compounds such as carbon monoxide.

New Chemicals — The DSL is the sole basis for determining whether a substance is new for the purposes of CEPA 1999. Substances on the DSL are considered to exist in Canadian commerce and do not require notification unless they are proposed for a Significant New Activity (SNAc), as indicated on the DSL. Substances not on the DSL are considered to be new to Canada and are subject to notification. The DSL includes the list published on May 4, 1994, in Part II of the Canada Gazette and all additions or deletions subsequently published in the Canada Gazette. Substances may be included on the DSL based on either of the following:

- commercial use in Canada between January 1, 1984, and December 31, 1986 (Subsection 66(1) of CEPA 1999); or
- the government has received all the prescribed information under Section 81 of CEPA 1999, and an assessment by the departments has determined that no controls should be imposed and that the import or manufacture has commenced after the most comprehensive notification package was assessed or exceeded the prescribed volumes (Section 87 of CEPA 1999).

Number of submitters (S) — For the purposes of this proposal, all 22 264 substances on DSL were ranked in descending order on the basis of their number of submitters (number ranged from 102 to 1).

Organic — Organic substances are well-defined carbon-containing compounds that can be defined or represented by a structure and molecular formula and organic moieties of salts.

Organic-metal salts — Organic-metal salts contain a metallic moiety and an organic moiety generally linked by an ionic single bond. Compare with ***organometallics***.

Organometallics — Organometallics are compounds that contain a metal covalently bonded to a carbon, as well as, for the purposes of categorization, all compounds where the metal has multiple bonds with oxygen, nitrogen or sulfur. Compare with ***organic-metal salts***.

Polymers — Polymers are substances that consist of:

- molecules characterized by the sequence of one or more types of monomer units;
- simple weight majority of molecules containing three or more monomer units that are covalently bound to one or more other monomer units or reactants;
- less than a simple weight majority of molecules of the same molecular weight; or
- molecules distributed over a range of molecular weights where the differences in the molecular weights are primarily attributable to differences in the number of units.

Priority Substances (Section 76) — Priority Substances are designated Existing Substances for which the Ministers of Environment and Health must conduct an assessment and publish a report to ascertain whether they are "toxic" within five years of addition to the PSL. Since 1988, for Existing Substances under CEPA, the Ministers of Health and Environment have assessed 69 substances (including a number of complex mixtures) on the first and second PSLs, deemed to be of highest priority with respect to health or to the environment. If, on the basis of a screening-level assessment, it is determined that a more detailed in-depth analysis of the risks to human health (or the environment) is warranted, a substance may be added to the PSL for a more rigorous and comprehensive assessment to determine whether the substance is or is capable of becoming "CEPA-toxic." The Act mandates that PSL assessments must be completed within five years from the date on which the substance is added to the PSL.

Quantity (Q) — For the purposes of this proposal, annual quantities of use were reported for each substance by each submitter in codes representing order-of-magnitude ranges (Appendix B). The high end of the quantity of use range for each substance reported by each submitter was summed for all submitters, resulting in total quantities of use for each substance ranging from 0 to greater than 10^9 kg/year (10^6 tonnes/year). All 22 264 substances on the DSL were then ranked in descending order on this basis.

Schedule 1 — Substances that are declared "toxic" under CEPA 1999 are placed on Schedule 1 (List of Toxic Substances) of the Act. They are then considered for risk management measures, such as regulations, guidelines or codes of practice to control any aspect of their life cycle, from the research and development stage through manufacture, use, storage, transport and ultimate disposal.

Schedule 3 — Schedule 3 of CEPA 1999 is the Export Control List. Sections 100–103 provide authority to control the export of substances regulated under CEPA 1999 or another Act of Parliament. Substances fall into three categories:

1. prohibited substances;
2. substances whose export is subject to an international agreement that requires the notification or consent of the receiving country; and

3. restricted substances.

Screening (Section 74) — Under Section 74 of CEPA 1999, the Ministers of Health and of the Environment must conduct screening assessments on each of the substances identified from the categorization of substances on the DSL. Screening assessments of risk will also be conducted on candidate substances from all streams, including those meeting criteria outlined under Section 75 of CEPA 1999. Screening assessments set the stage for further in-depth assessment or risk management. They will involve a comparison of exposure and effect in a priority-setting context. The outcome of screening assessments is discussed in ***Section 77*** of CEPA 1999.

Section 75 — CEPA 1999 requires both Ministers to review the decisions of other jurisdictions to prohibit or substantially restrict a substance for environmental or health reasons and determine whether the substance is or is capable of becoming "CEPA-toxic."

Section 77 — Under Section 77 of CEPA 1999, the outcome of a screening assessment may be 1) to take no further action on the substance, 2) to add the substance to the PSL for a more in-depth assessment or 3) to recommend that the substance be added to the List of Toxic Substances. Under Section 77, the proposed result of a screening assessment and a summary of the scientific considerations upon which the proposal is based must be published for public comment.

Submitters — Submitters are all Canadian manufacturers, importers and/or users who nominated and provided information on substances for listing on the DSL.

Substance — Under CEPA 1999, "substance" means any distinguishable kind of organic or inorganic matter, whether animate or inanimate, and includes:

- any mixture that is a combination of substances; and
- any complex mixtures of different molecules that are contained in effluents, emissions or wastes that result from any work, undertaking or activity.

This definition of a substance therefore encompasses discrete chemical compounds, classes of chemicals, emissions and effluents and products of biotechnology, including microorganisms.

Toxic — According to the CEPA 1999 legislation for human health, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions constituting or that may constitute a danger in Canada to human life or health. This legal definition of "toxic" under CEPA 1999 may be equated with risk, since it embodies the concept that harm to human health is a function of both the intrinsic toxicity (i.e., toxicity in the traditional sense) and the extent of exposure.

Use (U) — For the purposes of this proposal, all 22 264 substances on the DSL were ranked in descending order on the basis of their sums of normalized indices of expert-ranked functional use and industrial sector codes for each substance. Development of the parameter related to use (U) relied principally on expert judgement. Individually, 33 experts were asked to rank each of

the functional use and industrial sector codes as having "high," "medium" or "low" potential for exposure. An expert-ranked index was subsequently developed for each of the functional use and industrial sector codes through summation of the number of experts reporting each of "low," "medium" and "high" potential for exposure multiplied by scaling factors of 1 for "low," 10 for "medium" and 100 for "high." This index was then normalized to a scale between 1 and 100 by dividing by the number of participants. The order-of-magnitude scaling factors, although principally arbitrary, were chosen to increase the spread of values for the indices of use and to bias the weighting to those uses considered by experts to have the greatest potential for exposure. The manner in which the use codes were ranked on the basis of the output of the two workshops of experts is presented in Appendix C.

Use codes — "Functional use" and "industrial sector" codes were established by Environment Canada to provide information on type of use and industrial sector usage for particular substances as part of the compilation of the DSL (Environment Canada, 1988). Individual submitters were required to use these codes in their submissions. Ninety-nine codes were established for DSL reporting, with three types of code: special use codes (codes 00 and 01), functional use codes (codes 02 to 51) and industrial sector codes (codes 52 to 98). A list of the functional use and industrial sector codes is included in Appendix B.

U.S. EPA HPV Challenge Program List — The U.S. HPV chemicals are those that are manufactured in or imported into the United States in amounts equal to or greater than one million pounds per year. The U.S. EPA HPV Challenge Program List consists of all the HPV chemicals (approximately 2780) reported during the *Toxic Substances Control Act* (TSCA) 1990 Inventory Update Rule (IUR) reporting year and is available from <http://www.epa.gov/chemrtk/volchall.htm>. Inorganic substances and polymers, except in special circumstances, were not subject to the IUR reporting requirements.

UVCBs — Substances of Unknown or Variable composition, Complex reaction products and Biological materials are substances that cannot be represented by a complete structure diagram and specific molecular formula and include materials derived from natural sources and complex reactions that cannot be characterized in terms of constituent chemical compounds because their composition is too complex or variable.

8. References

Environment Canada. 1988. *Reporting for the Domestic Substances List.* Ministry of Supply and Services Canada (DSS Catalogue No. En40-364/1988).

European Commission. 2003. *The New Chemicals Legislation – REACH*. May 7, 2003. Available from the European Commission web site: <http://europa.eu.int/comm/enterprise/chemicals/chempol/whitepaper/reach.htm>.

Government of Canada. 1994. *New Substances Notification Regulations. SOR/94-260.* Text available from the Department of Justice web site: <http://laws.justice.gc.ca/en/C-15.31/SOR-94-260/index.html>.

Government of Canada. 1999. *Canadian Environmental Protection Act, 1999*. Canada Gazette Part III, November 4, 1999, 22(3).

Government of Canada. 2001a. *Notice with Respect to Certain Substances on the Domestic Substances List (DSL)*. Canada Gazette Part I, November 17, 2001, 135(46): 4194–4210.

Government of Canada. 2001b. *Guidelines for the Notification and Testing of New Substances: Chemicals and Polymers. Pursuant to The New Substances Notification Regulations of the Canadian Environmental Protection Act, 1999*. August 2001. Available from the Environment Canada New Substances Program web site: <http://www.ec.gc.ca/substances/nsb/eng/gui_e.htm>.

Koniecki D, Newhook R, Long G, Conilh de Beyssac B, and Socha A. 1997. Screening candidate substances for the second Priority Substances List under the *Canadian Environmental Protection Act*. *Environmental Carcinogenesis & Ecotoxicology Reviews*, C15(1): 41–59.

OECD. 2003. *Manual for the Investigation of HPV Chemicals*. OECD Secretariat. April 2003. Available from the OECD web site: <http://www.oecd.org/document/7/0,2340,en_2649_34379_1947463_1_1_1_1,00.html>.

Appendix A: Substances Initially Prioritized by the Proposed Approach

CAS registry number	Chemical name	Chemical group	CEPA 1999 Schedule 1	PSL	U.S. HPV	ICCA list 2003	HC/EC pilot
INORGANICS							
124-38-9	Carbon dioxide	Carbon			Yes		
143-33-9	Sodium cyanide (NaCN)	Cyanides				Yes	
144-55-8	Carbonic acid, monosodium salt	Carbonates				Yes	
298-14-6	Carbonic acid, monopotassium salt	Carbonates				Yes	
409-21-2	Silicon carbide (SiC)	Silicon					
471-34-1	Carbonic acid, calcium salt (1:1)	Carbonates					
497-19-8	Carbonic acid, disodium salt	Carbonates				Yes	
513-77-9	Carbonic acid, barium salt (1:1)	Barium				Yes	
533-96-0	Carbonic acid, sodium salt (2:3)	Carbonates					
546-93-0	Carbonic acid, magnesium salt (1:1)	Carbonates				Yes	
630-08-0	Carbon monoxide	Carbon			Yes	Yes	
1066-33-7	Carbonic acid, monoammonium salt	Carbonates				Yes	
1302-42-7	Aluminate (AlO_2^-), sodium	Aluminum				Yes	
1302-76-7	Kyanite ($Al_2O(SiO_4)$)	Aluminum					
1303-96-4	Borax ($B_4Na_2O_7 \cdot 10H_2O$)	Boron					
1305-62-0	Calcium hydroxide ($Ca(OH)_2$)	Hydroxides/ oxides				Yes	
1305-78-8	Calcium oxide (CaO)	Hydroxides/ oxides				Yes	
1308-38-9	Chromium oxide (Cr_2O_3)	Chromium				Yes	
1309-37-1	Iron oxide (Fe_2O_3)	Iron				Yes	
1309-38-2	Magnetite (Fe_3O_4)	Iron				Yes	
1309-42-8	Magnesium hydroxide ($Mg(OH)_2$)	Hydroxides/ oxides				Yes	
1309-48-4	Magnesium oxide (MgO)	Hydroxides/ oxides				Yes	
1309-60-0	Lead oxide (PbO_2)	Lead					
1309-64-4	Antimony oxide (Sb_2O_3)	Antimony					
1310-58-3	Potassium hydroxide (KOH)	Hydroxides/ oxides				Yes	
1310-73-2	Sodium hydroxide (NaOH)	Hydroxides/ oxides				Yes	
1313-13-9	Manganese oxide (MnO_2)	Manganese					

CAS registry number	Chemical name	Chemical group	CEPA 1999 Schedule 1	PSL	U.S. HPV	ICCA list 2003	HC/EC pilot
1313-82-2	Sodium sulfide (Na_2S)	Sulfur compounds				Yes	
1313-99-1	Nickel oxide (NiO)	Nickel	Yes			Yes	
1314-13-2	Zinc oxide (ZnO)	Zinc					
1314-23-4	Zirconium oxide (ZrO_2)	Zirconium					
1314-41-6	Lead oxide (Pb_3O_4)	Lead				Yes	
1314-56-3	Phosphorus oxide (P_2O_5)	Phosphorus				Yes	
1314-62-1	Vanadium oxide (V_2O_5)	Vanadium					
1317-36-8	Lead oxide (PbO)	Lead				Yes	
1317-38-0	Copper oxide (CuO)	Copper				Yes	
1317-39-1	Copper oxide (Cu_2O)	Copper				Yes	
1317-61-9	Iron oxide (Fe_3O_4)	Iron				Yes	
1317-80-2	Rutile (TiO_2)	Titanium					
1330-43-4	Boron sodium oxide ($B_4Na_2O_7$)	Boron					
1333-74-0	Hydrogen	Miscellaneous				Yes	
1333-82-0	Chromium oxide (CrO_3)	Chromium	Yes				
1336-21-6	Ammonium hydroxide (NH_4OH)	Hydroxides/ oxides				Yes	
1341-49-7	Ammonium fluoride ($NH_4(HF_2)$)	Fluoro compounds	Yes			Yes	
1344-28-1	Aluminum oxide (Al_2O_3)	Aluminum				Yes	
1344-43-0	Manganese oxide (MnO)	Manganese					
5329-14-6	Sulfamic acid	Sulfur compounds				Yes	
6484-52-2	Nitric acid, ammonium salt	Nitrates/ nitrites				Yes	
6834-92-0	Silicic acid (H_2SiO_3), disodium salt	Silicon				Yes	
7320-34-5	Diphosphoric acid, tetrapotassium salt	Phosphorus					
7429-90-5	Aluminum	Aluminum					
7439-89-6	Iron	Iron					
7439-92-1	Lead	Lead					
7439-96-5	Manganese	Manganese					
7440-02-0	Nickel	Nickel		Yes			
7440-21-3	Silicon	Silicon					
7440-22-4	Silver	Silver					
7440-31-5	Tin	Tin					
7440-44-0	Carbon	Carbon			Yes		
7440-47-3	Chromium	Chromium					
7440-48-4	Cobalt	Cobalt					
7440-50-8	Copper	Copper					
7440-66-6	Zinc	Zinc					
7446-09-5	Sulfur dioxide	Sulfur compounds				Yes	
7446-70-0	Aluminum chloride ($AlCl_3$)	Aluminum		Yes		Yes	

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7447-40-7	Potassium chloride (KCl)	Chlorine compounds				Yes	
7487-88-9	Sulfuric acid, magnesium salt (1:1)	Sulfur compounds					
7553-56-2	Iodine	Iodine compounds					
7558-79-4	Phosphoric acid, disodium salt	Phosphorus					
7558-80-7	Phosphoric acid, monosodium salt	Phosphorus					
7601-54-9	Phosphoric acid, trisodium salt	Phosphorus					
7631-86-9	Silica	Silicon				Yes	
7631-90-5	Sulfurous acid, monosodium salt	Sulfur compounds				Yes	
7631-99-4	Nitric acid, sodium salt	Nitrates/ nitrites				Yes	
7632-00-0	Nitrous acid, sodium salt	Nitrates/ nitrites				Yes	
7632-04-4	Perboric acid ($HBO(O_2)$), sodium salt	Boron					
7646-85-7	Zinc chloride ($ZnCl_2$)	Zinc					
7647-01-0	Hydrochloric acid	Chlorine compounds				Yes	HC
7647-14-5	Sodium chloride (NaCl)	Chlorine compounds					
7664-38-2	Phosphoric acid	Phosphorus					
7664-39-3	Hydrofluoric acid	Fluoro compounds	Yes				
7664-41-7	Ammonia	Basic compounds		Yes		Yes	
7664-93-9	Sulfuric acid	Sulfur compounds				Yes	HC
7681-11-0	Potassium iodide (KI)	Iodine compounds					
7681-38-1	Sulfuric acid, monosodium salt	Sulfur compounds				Yes	
7681-49-4	Sodium fluoride (NaF)	Fluoro compounds	Yes			Yes	
7681-52-9	Hypochlorous acid, sodium salt	Chlorine compounds		Yes			
7681-57-4	Disulfurous acid, disodium salt	Sulfur compounds				Yes	
7697-37-2	Nitric acid	Nitrates/ nitrites				Yes	
7704-34-9	Sulfur	Sulfur compounds				Yes	
7705-08-0	Iron chloride ($FeCl_3$)	Iron				Yes	
7720-78-7	Sulfuric acid, iron(2+) salt (1:1)	Iron				Yes	

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7722-76-1	Phosphoric acid, monoammonium salt	Phosphorus					
7722-84-1	Hydrogen peroxide (H_2O_2)	Peroxo compounds					
7722-88-5	Diphosphoric acid, tetrasodium salt	Phosphorus					
7727-37-9	Nitrogen	Miscellaneous					
7727-43-7	Sulfuric acid, barium salt (1:1)	Barium				Yes	
7732-18-5	Water	Miscellaneous					
7733-02-0	Sulfuric acid, zinc salt (1:1)	Zinc					
7738-94-5	Chromic acid (H_2CrO_4)	Chromium(VI)	Yes				
7757-79-1	Nitric acid, potassium salt	Nitrates/ nitrites				Yes	
7757-82-6	Sulfuric acid, disodium salt	Sulfur compounds				Yes	
7757-83-7	Sulfurous acid, disodium salt	Sulfur compounds				Yes	
7757-93-9	Phosphoric acid, calcium salt (1:1)	Phosphorus					
7758-11-4	Phosphoric acid, dipotassium salt	Phosphorus					
7758-16-9	Diphosphoric acid, disodium salt	Phosphorus					
7758-23-8	Phosphoric acid, calcium salt (2:1)	Phosphorus				Yes	
7758-29-4	Triphosphoric acid, pentasodium salt	Phosphorus					
7758-87-4	Phosphoric acid, calcium salt (2:3)	Phosphorus					
7758-97-6	Chromic acid (H_2CrO_4), lead(2+) salt (1:1)	Chromium(VI)	Yes			Yes	
7758-98-7	Sulfuric acid, copper(2+) salt (1:1)	Copper				Yes	
7775-09-9	Chloric acid, sodium salt	Chlorine compounds				Yes	
7775-14-6	Dithionous acid, disodium salt	Sulfur compounds				Yes	
7778-18-9	Sulfuric acid, calcium salt (1:1)	Sulfur compounds				Yes	
7778-54-3	Hypochlorous acid, calcium salt	Chlorine compounds				Yes	
7778-80-5	Sulfuric acid, dipotassium salt	Sulfur compounds				Yes	
7782-42-5	Graphite	Carbon					
7782-50-5	Chlorine	Chlorine compounds				Yes	

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7783-20-2	Sulfuric acid, diammonium salt	Sulfur compounds				Yes	
7783-28-0	Phosphoric acid, diammonium salt	Phosphorus					
7785-88-8	Phosphoric acid, aluminum sodium salt	Phosphorus					
7786-30-3	Magnesium chloride ($MgCl_2$)	Chlorine compounds					
7786-81-4	Sulfuric acid, nickel(2+) salt (1:1)	Nickel					
10028-22-5	Sulfuric acid, iron(3+) salt (3:2)	Iron				Yes	
10043-01-3	Sulfuric acid, aluminum salt (3:2)	Aluminum		Yes		Yes	
10043-35-3	Boric acid (H_3BO_3)	Boron					
10043-52-4	Calcium chloride ($CaCl_2$)	Chlorine compounds				Yes	
10049-04-4	Chlorine oxide (ClO_2)	Chlorine compounds					HC
10101-39-0	Silicic acid (H_2SiO_3), calcium salt (1:1)	Silicon				Yes	
10101-52-7	Silicic acid (H_4SiO_4), zirconium(4+) salt (1:1)	Silicon					
10124-37-5	Nitric acid, calcium salt	Nitrates/ nitrites					
10124-43-3	Sulfuric acid, cobalt(2+) salt (1:1)	Cobalt				Yes	
10192-30-0	Sulfurous acid, monoammonium salt	Sulfur compounds					
10361-37-2	Barium chloride ($BaCl_2$)	Barium					
10588-01-9	Chromic acid ($H_2Cr_2O_7$), disodium salt	Chromium(VI)	Yes				
12125-02-9	Ammonium chloride (NH_4Cl)	Chlorine compounds				Yes	
12136-45-7	Potassium oxide (K_2O)	Hydroxides/ oxides					
12202-17-4	Lead oxide sulfate ($Pb_4O_3(SO_4)$)	Lead				Yes	
13463-67-7	Titanium oxide (TiO_2)	Titanium					
13530-65-9	Chromic acid (H_2CrO_4), zinc salt (1:1)	Chromium(VI)	Yes				
13601-19-9	Ferrate(4-), hexakis(cyano-C)-, tetrasodium, (OC-6-11)-	Ferrocyanides					
14464-46-1	Cristobalite (SiO_2)	Silicon					
14807-96-6	Talc ($Mg_3H_2(SiO_3)_4$)	Silicon					

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14808-60-7	Quartz (SiO_2)	Silicon					
16721-80-5	Sodium sulfide (NaSH)	Sulfur compounds				Yes	
16893-85-9	Silicate(2-), hexafluoro-, disodium	Silicon				Yes	
17194-00-2	Barium hydroxide ($Ba(OH)_2$)	Barium					
21645-51-2	Aluminum hydroxide ($Al(OH)_3$)	Aluminum				Yes	
60676-86-0	Silica, vitreous	Silicon					
ORGANICS							
50-00-0	Formaldehyde	Aldehydes		Yes	Yes	Yes	
50-21-5	Propanoic acid, 2-hydroxy-	Acids			Yes		
50-70-4	D-Glucitol	Carbohydrates & derivatives			Yes		
50-81-7	L-Ascorbic acid	Lactones			Yes		
50-99-7	D-Glucose	Carbohydrates & derivatives			Yes		
56-23-5	Methane, tetrachloro-	Halogenated, aliphatic	Yes		Yes	Yes	
56-81-5	1,2,3-Propanetriol	Alcohols			Yes	Yes	
56-87-1	L-Lysine	Amino acids & derivatives					
57-10-3	Hexadecanoic acid	Acids			Yes	Yes	
57-11-4	Octadecanoic acid	Acids			Yes	Yes	
57-13-6	Urea	Ureas			Yes		
57-50-1	α-D-Glucopyranoside, β-D-fructofuranosyl	Carbohydrates & derivatives			Yes		
57-55-6	1,2-Propanediol	Alcohols			Yes	Yes	
59-51-8	DL-Methionine	Amino acids & derivatives					
60-00-4	Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)]-	Amines, aliphatic			Yes		
60-24-2	Ethanol, 2-mercapto-	Thiols			Yes	Yes	
60-29-7	Ethane, 1,1'-oxybis-	Ethers			Yes	Yes	
60-33-3	9,12-Octadecadienoic acid, (Z,Z)-	Acids			Yes	Yes	
62-56-6	Thiourea	Ureas			Yes	Yes	
63-42-3	D-Glucose, 4-O-β-D-galactopyranosyl-	Carbohydrates & derivatives					
64-02-8	Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)]-, tetrasodium salt	Amines, aliphatic			Yes		
64-17-5	Ethanol	Alcohols			Yes	Yes	

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64-18-6	Formic acid	Acids			Yes	Yes	
64-19-7	Acetic acid	Acids			Yes	Yes	
65-85-0	Benzoic acid	Acids			Yes	Yes	
67-56-1	Methanol	Alcohols			Yes	Yes	HC
67-63-0	2-Propanol	Alcohols			Yes		HC
67-64-1	2-Propanone	Ketones			Yes		HC
67-66-3	Methane, trichloro-	Halogenated, aliphatic		Yes	Yes		
68-04-2	1,2,3-Propanetricarboxylic acid, 2-hydroxy-, trisodium salt	Acid salts			Yes	Yes	
68-12-2	Formamide, N,N-dimethyl-	Amides		Yes	Yes	Yes	
69-65-8	D-Mannitol	Carbohydrates & derivatives			Yes		
69-72-7	Benzoic acid, 2-hydroxy-	Phenols			Yes	Yes	
71-23-8	1-Propanol	Alcohols			Yes		
71-36-3	1-Butanol	Alcohols			Yes	Yes	HC
71-41-0	1-Pentanol	Alcohols			Yes	Yes	
71-43-2	Benzene	Hydrocarbons, aromatic	Yes	Yes	Yes		
71-55-6	Ethane, 1,1,1-trichloro-	Halogenated, aliphatic	Yes	Yes	Yes	Yes	
74-82-8	Methane	Hydrocarbons, aliphatic			Yes	Yes	
74-84-0	Ethane	Hydrocarbons, aliphatic			Yes	Yes	
74-87-3	Methane, chloro-	Halogenated, aliphatic			Yes	Yes	
74-98-6	Propane	Hydrocarbons, aliphatic			Yes	Yes	
75-05-8	Acetonitrile	Nitriles			Yes		
75-07-0	Acetaldehyde	Aldehydes	Yes	Yes	Yes	Yes	
75-08-1	Ethanethiol	Thiols			Yes	Yes	
75-09-2	Methane, dichloro-	Halogenated, aliphatic	Yes	Yes	Yes	Yes	
75-21-8	Oxirane	Epoxides		Yes	Yes	Yes	
75-28-5	Propane, 2-methyl-	Hydrocarbons, aliphatic			Yes	Yes	
75-56-9	Oxirane, methyl-	Epoxides			Yes		
75-66-1	2-Propanethiol, 2-methyl-	Thiols			Yes	Yes	
75-69-4	Methane, trichlorofluoro-	Halogenated, aliphatic	Yes		Yes		
75-71-8	Methane, dichlorodifluoro-	Halogenated, aliphatic	Yes		Yes		

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76-13-1	Ethane, 1,1,2-trichloro-1,2,2-trifluoro-	Halogenated, aliphatic	Yes		Yes		
77-73-6	4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro-	Hydrocarbons, aliphatic			Yes		
77-92-9	1,2,3-Propanetricarboxylic acid, 2-hydroxy-	Acids			Yes	Yes	
77-99-6	1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-	Alcohols			Yes		
78-51-3	Ethanol, 2-butoxy-, phosphate (3:1)	Phosphorus(V)			Yes	Yes	
78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	Ketones			Yes	Yes	
78-78-4	Butane, 2-methyl-	Hydrocarbons, aliphatic			Yes	Yes	
78-79-5	1,3-Butadiene, 2-methyl-	Hydrocarbons, aliphatic			Yes	Yes	
78-83-1	1-Propanol, 2-methyl-	Alcohols			Yes	Yes	
78-93-3	2-Butanone	Ketones			Yes		HC
79-01-6	Ethene, trichloro-	Halogenated, aliphatic	Yes	Yes	Yes		
79-06-1	2-Propenamide	Acrylamides			Yes		
79-09-4	Propanoic acid	Acids			Yes	Yes	
79-10-7	2-Propenoic acid	Acrylates			Yes		
79-14-1	Acetic acid, hydroxy-	Acids			Yes	Yes	
79-41-4	2-Propenoic acid, 2-methyl-	Methacrylates			Yes		
80-05-7	Phenol, 4,4'-(1-methylethylidene)bis-	Phenols			Yes		
80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl	Peroxo compounds			Yes	Yes	
80-43-3	Peroxide, bis(1-methyl-1-phenylethyl)	Peroxo compounds			Yes	Yes	
80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	Methacrylates		Yes	Yes		
84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	Phthalates		Yes	Yes		
85-44-9	1,3-Isobenzofurandione	Phthalates			Yes	Yes	
85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	Phthalates		Yes	Yes		
87-90-1	1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-trichloro-	Triazines			Yes	Yes	
90-30-2	1-Naphthalenamine, N-phenyl-	Amines, aromatic			Yes		

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91-20-3	Naphthalene	Hydrocarbons, polycyclic aromatic	Yes		Yes		HC
91-44-1	2H-1-Benzopyran-2-one, 7-(diethylamino)-4-methyl-	Lactones					
93-58-3	Benzoic acid, methyl ester	Esters, aromatic			Yes		
94-91-7	Phenol, 2,2'-[(1-methyl-1,2-ethanediyl)bis-(nitrilomethylidyne)]bis-	Phenols					
95-47-6	Benzene, 1,2-dimethyl-	Hydrocarbons, aromatic			Yes	Yes	
96-29-7	2-Butanone, oxime	Ketoximes			Yes	Yes	
97-53-0	Phenol, 2-methoxy-4-(2-propenyl)-	Phenols					
97-88-1	2-Propenoic acid, 2-methyl-, butyl ester	Methacrylates			Yes	Yes	
98-00-0	2-Furanmethanol	Ethers, aromatic			Yes	Yes	
98-01-1	2-Furancarboxaldehyde	Ethers, aromatic			Yes		
98-82-8	Benzene, (1-methylethyl)-	Hydrocarbons, aromatic			Yes		
98-92-0	3-Pyridinecarboxamide	N-Heterocycles			Yes	Yes	
100-37-8	Ethanol, 2-(diethylamino)-	Alcohols			Yes	Yes	
100-41-4	Benzene, ethyl-	Hydrocarbons, aromatic			Yes		HC
100-42-5	Benzene, ethenyl-	Hydrocarbons, aromatic		Yes	Yes		
100-44-7	Benzene, (chloromethyl)-	Halogenated, aliphatic			Yes		
100-51-6	Benzenemethanol	Alcohols			Yes	Yes	
100-52-7	Benzaldehyde	Aldehydes			Yes		
100-97-0	1,3,5,7-Tetraazatri-cyclo[3.3.1.13,7]decane	Triazines			Yes		
101-68-8	Benzene, 1,1'-methylene-bis[4-isocyanato-	Isocyanates			Yes		
101-81-5	Benzene, 1,1'-methylenebis-	Hydrocarbons, aromatic				Yes	
101-96-2	1,4-Benzenediamine, N,N'-bis(1-methylpropyl)-	Amines, aromatic			Yes		
102-71-6	Ethanol, 2,2',2"-nitrilotris-	Alcohols			Yes		
102-76-1	1,2,3-Propanetriol, triacetate	Esters			Yes	Yes	
103-11-7	2-Propenoic acid, 2-ethylhexyl ester	Acrylates			Yes		
103-23-1	Hexanedioic acid, bis(2-ethylhexyl) ester	Esters			Yes		

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103-24-2	Nonanedioic acid, bis(2-ethylhexyl) ester	Esters			Yes		
104-15-4	Benzenesulfonic acid, 4-methyl-	Benzene-sulfonates			Yes	Yes	
104-76-7	1-Hexanol, 2-ethyl-	Alcohols			Yes		
105-59-9	Ethanol, 2,2'-(methylimino)bis-	Alcohols			Yes	Yes	
105-60-2	2H-Azepin-2-one, hexahydro-	N-Heterocycles			Yes	Yes	
106-89-8	Oxirane, chloromethyl-	Epoxides			Yes	Yes	
106-97-8	Butane	Hydrocarbons, aliphatic			Yes	Yes	
106-99-0	1,3-Butadiene	Hydrocarbons, aliphatic	Yes	Yes	Yes		
107-06-2	Ethane, 1,2-dichloro-	Halogenated, aliphatic	Yes	Yes	Yes	Yes	
107-13-1	2-Propenenitrile	Nitriles	Yes	Yes	Yes		
107-15-3	1,2-Ethanediamine	Amines, aliphatic			Yes	Yes	
107-21-1	1,2-Ethanediol	Alcohols		Yes	Yes	Yes	
107-41-5	2,4-Pentanediol, 2-methyl-	Alcohols			Yes	Yes	
107-83-5	Pentane, 2-methyl-	Hydrocarbons, aliphatic			Yes	Yes	
107-87-9	2-Pentanone	Ketones			Yes		
107-92-6	Butanoic acid	Acids			Yes	Yes	
107-98-2	2-Propanol, 1-methoxy-	Glycol ethers			Yes	Yes	
108-05-4	Acetic acid, ethenyl ester	Esters			Yes		
108-10-1	2-Pentanone, 4-methyl-	Ketones			Yes		HC
108-11-2	2-Pentanol, 4-methyl-	Alcohols			Yes	Yes	
108-21-4	Acetic acid, 1-methylethyl ester	Esters			Yes	Yes	
108-24-7	Acetic acid, anhydride	Acid anhydrides			Yes		
108-31-6	2,5-Furandione	Acid anhydrides			Yes	Yes	
108-38-3	Benzene, 1,3-dimethyl-	Hydrocarbons, aromatic			Yes	Yes	
108-46-3	1,3-Benzenediol	Phenols			Yes	Yes	
108-65-6	2-Propanol, 1-methoxy-, acetate	Glycol ethers			Yes	Yes	
108-78-1	1,3,5-Triazine-2,4,6-triamine	Triazines			Yes		
108-83-8	4-Heptanone, 2,6-dimethyl-	Ketones			Yes		
108-88-3	Benzene, methyl-	Hydrocarbons, aromatic		Yes	Yes		
108-91-8	Cyclohexanamine	Amines, aliphatic			Yes	Yes	
108-93-0	Cyclohexanol	Alcohols			Yes	Yes	
108-94-1	Cyclohexanone	Ketones			Yes		
108-95-2	Phenol	Phenols		Yes	Yes		

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109-60-4	Acetic acid, propyl ester	Esters			Yes	Yes	
109-66-0	Pentane	Hydrocarbons, aliphatic			Yes		
109-86-4	Ethanol, 2-methoxy-	Glycol ethers		Yes	Yes	Yes	
109-94-4	Formic acid, ethyl ester	Esters					
109-99-9	Furan, tetrahydro-	Ethers			Yes		
110-12-3	2-Hexanone, 5-methyl-	Ketones			Yes	Yes	
110-15-6	Butanedioic acid	Acids			Yes	Yes	
110-17-8	2-Butenedioic acid (E)-	Acids			Yes	Yes	
110-19-0	Acetic acid, 2-methylpropyl ester	Esters			Yes	Yes	
110-30-5	Octadecanamide, N,N'-1,2-ethanediylbis-	Amides			Yes	Yes	
110-43-0	2-Heptanone	Ketones			Yes		
110-54-3	Hexane	Hydrocarbons, aliphatic			Yes	Yes	
110-80-5	Ethanol, 2-ethoxy-	Glycol ethers		Yes	Yes		
110-82-7	Cyclohexane	Hydrocarbons, aliphatic			Yes		HC
110-91-8	Morpholine	N,O-Heterocycles			Yes	Yes	
110-97-4	2-Propanol, 1,1'-iminobis-	Alcohols			Yes	Yes	
111-15-9	Ethanol, 2-ethoxy-, acetate	Glycol ethers			Yes		
111-27-3	1-Hexanol	Alcohols			Yes	Yes	
111-40-0	1,2-Ethanediamine, N-(2-aminoethyl)-	Amines, aliphatic			Yes		
111-42-2	Ethanol, 2,2'-iminobis-	Alcohols			Yes		HC
111-46-6	Ethanol, 2,2'-oxybis-	Glycol ethers			Yes	Yes	HC
111-55-7	1,2-Ethanediol, diacetate	Esters			Yes		
111-76-2	Ethanol, 2-butoxy-	Glycol ethers		Yes	Yes		
111-77-3	Ethanol, 2-(2-methoxyethoxy)-	Glycol ethers			Yes		
111-82-0	Dodecanoic acid, methyl ester	Esters			Yes	Yes	
111-87-5	1-Octanol	Alcohols			Yes	Yes	
111-90-0	Ethanol, 2-(2-ethoxyethoxy)-	Glycol ethers			Yes	Yes	
112-05-0	Nonanoic acid	Acids			Yes	Yes	
112-07-2	Ethanol, 2-butoxy-, acetate	Glycol ethers			Yes	Yes	
112-27-6	Ethanol, 2,2'-[1,2-ethanediylbis(oxy)]bis-	Glycol ethers			Yes	Yes	
112-30-1	1-Decanol	Alcohols			Yes	Yes	
112-31-2	Decanal	Aldehydes					
112-34-5	Ethanol, 2-(2-butoxyethoxy)-	Glycol ethers			Yes		
112-38-9	10-Undecenoic acid	Acids					

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112-53-8	1-Dodecanol	Alcohols			Yes		
112-54-9	Dodecanal	Aldehydes					
112-60-7	Ethanol, 2,2'-[oxybis(2,1-ethanediyloxy)]bis-	Glycol ethers			Yes	Yes	
112-69-6	1-Hexadecanamine, N,N-dimethyl-	Amines, aliphatic			Yes	Yes	
112-72-1	1-Tetradecanol	Alcohols			Yes	Yes	
112-80-1	9-Octadecenoic acid, (Z)-	Acids			Yes	Yes	
112-84-5	13-Docosenamide, (Z)-	Amides			Yes	Yes	
112-90-3	9-Octadecen-1-amine, (Z)-	Amines, aliphatic			Yes	Yes	
112-92-5	1-Octadecanol	Alcohols			Yes		
115-07-1	1-Propene	Hydrocarbons, aliphatic			Yes	Yes	HC
115-77-5	1,3-Propanediol, 2,2-bis(hydroxymethyl)-	Alcohols			Yes		
117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	Phthalates	Yes	Yes	Yes		
120-40-1	Dodecanamide, N,N-bis(2-hydroxyethyl)-	Amides			Yes		
120-51-4	Benzoic acid, phenylmethyl ester	Esters			Yes	Yes	
120-55-8	Ethanol, 2,2'-oxybis-, dibenzoate	Glycol ethers			Yes		
121-91-5	1,3-Benzenedicarboxylic acid	Acids			Yes	Yes	
122-39-4	Benzenamine, N-phenyl-	Amines, aromatic			Yes		
122-78-1	Benzeneacetaldehyde	Aldehydes					
122-97-4	Benzenepropanol	Alcohols					
122-99-6	Ethanol, 2-phenoxy-	Alcohols			Yes	Yes	
123-31-9	1,4-Benzenediol	Phenols			Yes		
123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	Ketones			Yes		
123-77-3	Diazenedicarboxamide	Amides			Yes		
123-86-4	Acetic acid, butyl ester	Esters			Yes	Yes	
123-91-1	1,4-Dioxane	Ethers			Yes		
124-04-9	Hexanedioic acid	Acids			Yes	Yes	
124-07-2	Octanoic acid	Acids			Yes	Yes	
124-13-0	Octanal	Aldehydes			Yes		
124-19-6	Nonanal	Aldehydes			Yes		
124-30-1	1-Octadecanamine	Amines, aliphatic			Yes	Yes	
124-40-3	Methanamine, N-methyl-	Amines, aliphatic			Yes	Yes	
124-68-5	1-Propanol, 2-amino-2-methyl-	Alcohols			Yes	Yes	
126-30-7	1,3-Propanediol, 2,2-dimethyl-	Alcohols			Yes		

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126-86-3	5-Decyne-4,7-diol, 2,4,7,9-tetramethyl-	Alcohols			Yes		
127-08-2	Acetic acid, potassium salt	Acid salts			Yes	Yes	
127-09-3	Acetic acid, sodium salt	Acid salts			Yes	Yes	
127-18-4	Ethene, tetrachloro-	Halogenated, aliphatic	Yes	Yes	Yes		
128-37-0	Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	Phenols			Yes	Yes	
128-39-2	Phenol, 2,6-bis(1,1-dimethylethyl)-	Phenols			Yes		
136-51-6	Hexanoic acid, 2-ethyl-, calcium salt	Acid salts			Yes	Yes	
136-60-7	Benzoic acid, butyl ester	Esters					
137-08-6	β-Alanine, N-(2,4-dihydroxy-3,3-dimethyl-1-oxobutyl)-, calcium salt (2:1), (R)-	Amino acids & derivatives					
137-16-6	Glycine, N-methyl-N-(1-oxododecyl)-, sodium salt	Amino acids & derivatives			Yes		
139-05-9	Sulfamic acid, cyclohexyl-, monosodium salt	Sulfur compounds					
139-96-8	Sulfuric acid, monododecyl ester, compd. with 2,2',2"-nitrilotris[ethanol] (1:1)	Sulfur compounds			Yes	Yes	
140-01-2	Glycine, N,N-bis[2-[bis(carboxymethyl)-amino]ethyl]-, pentasodium salt	Amino acids & derivatives			Yes	Yes	
140-88-5	2-Propenoic acid, ethyl ester	Acrylates			Yes	Yes	
141-22-0	9-Octadecenoic acid, 12-hydroxy-, [R-(Z)]-	Acids					
141-32-2	2-Propenoic acid, butyl ester	Acrylates			Yes	Yes	
141-43-5	Ethanol, 2-amino-	Alcohols			Yes	Yes	
141-53-7	Formic acid, sodium salt	Acid salts			Yes	Yes	
141-78-6	Acetic acid, ethyl ester	Esters			Yes	Yes	
141-79-7	3-Penten-2-one, 4-methyl-	Ketones			Yes		
142-47-2	L-Glutamic acid, monosodium salt	Amino acids & derivatives			Yes	Yes	
142-78-9	Dodecanamide, N-(2-hydroxyethyl)-	Amides			Yes	Yes	
142-82-5	Heptane	Hydrocarbons, aliphatic			Yes	Yes	
143-07-7	Dodecanoic acid	Acids			Yes	Yes	
143-08-8	1-Nonanol	Alcohols					

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143-19-1	9-Octadecenoic acid, (Z)-, sodium salt	Acid salts					
144-62-7	Ethanedioic acid	Acids			Yes	Yes	
149-30-4	2(3H)-Benzothiazolethione	N,S-Heterocycles			Yes	Yes	
149-57-5	Hexanoic acid, 2-ethyl-	Acids			Yes		
151-21-3	Sulfuric acid, monododecyl ester, sodium salt	Sulfur compounds			Yes		
301-02-0	9-Octadecenamide, (Z)-	Amides			Yes	Yes	
334-48-5	Decanoic acid	Acids			Yes	Yes	
431-03-8	2,3-Butanedione	Ketones					
461-58-5	Guanidine, cyano-	Amines, aliphatic			Yes	Yes	
463-40-1	9,12,15-Octadecatrienoic acid, (Z,Z,Z)-	Acids					
513-86-0	2-Butanone, 3-hydroxy-	Ketones					
514-10-3	1-Phenanthrenecarboxylic acid, 1,2,3,4,4a,4b,5,6,10,10a-decahydro-1,4a-dimethyl-7-(1-methylethyl)-, [1R-(1α,4aβ ,4bα,10aα)]-	Acids					
526-95-4	D-Gluconic acid	Carbohydrates & derivatives			Yes	Yes	
527-07-1	D-Gluconic acid, monosodium salt	Carbohydrates & derivatives			Yes	Yes	
532-32-1	Benzoic acid, sodium salt	Acid salts			Yes	Yes	
540-84-1	Pentane, 2,2,4-trimethyl-	Hydrocarbons, aliphatic			Yes	Yes	
544-17-2	Formic acid, calcium salt	Acid salts			Yes	Yes	
544-63-8	Tetradecanoic acid	Acids			Yes	Yes	
552-30-7	5-Isobenzofurancarboxylic acid, 1,3-dihydro-1,3-dioxo-	Acid anhydrides			Yes	Yes	
577-11-7	Butanedioic acid, sulfo-, 1,4-bis(2-ethylhexyl) ester, sodium salt	Sulfur compounds			Yes	Yes	
584-08-7	Carbonic acid, dipotassium salt	Isocyanates				Yes	
587-98-4	Benzenesulfonic acid, 3-[[4-(phenylamino)phenyl]azo]-, monosodium salt	Azo compounds					
628-63-7	Acetic acid, pentyl ester	Esters			Yes	Yes	
763-69-9	Propanoic acid, 3-ethoxy-, ethyl ester	Esters			Yes	Yes	
822-16-2	Octadecanoic acid, sodium salt	Acid salts			Yes		
872-50-4	2-Pyrrolidinone, 1-methyl-	N-Heterocycles			Yes	Yes	

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1119-40-0	Pentanedioic acid, dimethyl ester	Esters			Yes	Yes	
1120-36-1	1-Tetradecene	Hydrocarbons, aliphatic			Yes		
1300-72-7	Benzenesulfonic acid, dimethyl-, sodium salt	Benzene-sulfonates			Yes	Yes	
1319-77-3	Phenol, methyl-	Phenols			Yes	Yes	
1321-69-3	Naphthalenesulfonic acid, sodium salt	Naphthalene-sulfonates					
1330-20-7	Benzene, dimethyl-	Hydrocarbons, aromatic		Yes	Yes	Yes	
1330-78-5	Phosphoric acid, tris(methylphenyl) ester	Phosphorus(V)			Yes	Yes	HC
1331-61-9	Benzenesulfonic acid, dodecyl-, ammonium salt	Benzene-sulfonates				Yes	
1334-78-7	Benzaldehyde, methyl-	Aldehydes					
1338-41-6	Sorbitan, monooctadecanoate	Esters			Yes		
1338-43-8	Sorbitan, mono-9-octadecenoate, (Z)-	Esters			Yes		
1592-23-0	Octadecanoic acid, calcium salt	Acid salts			Yes		
1643-20-5	1-Dodecanamine, N,N-dimethyl-, N-oxide	Amine oxides			Yes	Yes	
1760-24-3	1,2-Ethanediamine, N-[3-(trimethoxysilyl)propyl]-	Alkoxysilanes			Yes	Yes	
2082-79-3	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, octadecyl ester	Esters			Yes	Yes	
2235-54-3	Sulfuric acid, monododecyl ester, ammonium salt	Sulfur compounds			Yes	Yes	
2425-85-6	2-Naphthalenol, 1-[(4-methyl-2-nitrophenyl)azo]-	Azo compounds					
2492-26-4	2(3H)-Benzothiazolethione, sodium salt	Benzothiazoles			Yes	Yes	
2807-30-9	Ethanol, 2-propoxy-	Glycol ethers			Yes	Yes	
2893-78-9	1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3-dichloro-, sodium salt	Triazines			Yes	Yes	
3234-85-3	Tetradecanoic acid, tetradecyl ester	Esters					
3319-31-1	1,2,4-Benzenetricarboxylic acid, tris(2-ethylhexyl) ester	Phthalates			Yes	Yes	
3648-20-2	1,2-Benzenedicarboxylic acid, diundecyl ester	Phthalates			Yes	Yes	EC

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4080-31-3	3,5,7-Triaza-1-azonia-tricyclo[3.3.1.13,7]decane, 1-(3-chloro-2-propenyl)-, chloride	Triazines			Yes		
5064-31-3	Glycine, N,N-bis(carboxymethyl)-, trisodium salt	Amino acids & derivatives			Yes		
5102-83-0	Butanamide, 2,2'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[N-(2,4-dimethylphenyl)-3-oxo-	Dichloro-benzidine-based compounds			Yes	Yes	
5281-04-9	2-Naphthalenecarboxylic acid, 3-hydroxy-4-[(4-methyl-2-sulfophenyl)azo]-, calcium salt (1:1)	Azo -β-naphthols			Yes		
5468-75-7	Butanamide, 2,2'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[N-(2-methylphenyl)-3-oxo-	Dichloro-benzidine-based compounds			Yes		
6358-85-6	Butanamide, 2,2'-[(3,3'-dichloro[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[3-oxo-N-phenyl-	Dichloro-benzidine-based compounds			Yes	Yes	
6846-50-0	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester	Esters			Yes		
6915-15-7	Butanedioic acid, hydroxy-	Acids			Yes	Yes	
10081-67-1	Benzenamine, 4-(1-methyl-1-phenylethyl)-N-[4-(1-methyl-1-phenylethyl)phenyl]-	Amines, aromatic			Yes		EC
12068-03-0	Benzenesulfonic acid, methyl-, sodium salt	Benzene-sulfonates			Yes	Yes	
13863-31-5	Benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(2-hydroxyethyl)methyl-amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt	Triazines			Yes		
16090-02-1	Benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-(4-morpholinyl)-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt	Triazines			Yes	Yes	

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17831-71-9	2-Propenoic acid, oxybis(2,1-ethanediyloxy-2,1-ethanediyl) ester	Acrylates					
24634-61-5	2,4-Hexadienoic acid, potassium salt, (E,E)-	Acid salts			Yes	Yes	
25154-52-3	Phenol, nonyl-	Phenols			Yes		
25155-30-0	Benzenesulfonic acid, dodecyl-, sodium salt	Benzene-sulfonates			Yes	Yes	
25167-32-2	Benzenesulfonic acid, oxybis[dodecyl-, disodium salt	Benzene-sulfonates					
25265-71-8	Propanol, oxybis-	Alcohols			Yes	Yes	
25265-77-4	Propanoic acid, 2-methyl-, monoester with 2,2,4-trimethyl-1,3-pentanediol	Esters			Yes		
25339-17-7	Isodecanol	Alcohols			Yes	Yes	
25496-72-4	9-Octadecenoic acid, (Z)-, monoester with 1,2,3-propanetriol	Esters			Yes	Yes	
26264-05-1	Benzenesulfonic acid, dodecyl-, compd. with 2-propanamine (1:1)	Benzene-sulfonates			Yes		
26264-06-2	Benzenesulfonic acid, dodecyl-, calcium salt	Benzene-sulfonates			Yes	Yes	
26264-58-4	Naphthalenesulfonic acid, methyl-, sodium salt	Naphthalene-sulfonates					
26447-40-5	Benzene, 1,1-methylene-bis[isocyanato-	Isocyanates			Yes		
26471-62-5	Benzene, 1,3-diisocyanatomethyl-	Isocyanates			Yes	Yes	
26523-78-4	Phenol, nonyl-, phosphite (3:1)	Phosphorus(III)			Yes		
26761-40-0	1,2-Benzenedicarboxylic acid, diisodecyl ester	Phthalates			Yes		
27138-31-4	Propanol, oxybis-, dibenzoate	Glycol ethers			Yes		
27176-87-0	Benzenesulfonic acid, dodecyl-	Benzene-sulfonates			Yes	Yes	
27178-16-1	Hexanedioic acid, diisodecyl ester	Esters			Yes	Yes	
27193-86-8	Phenol, dodecyl-	Phenols			Yes		
28519-02-0	Benzenesulfonic acid, dodecyl(sulfophenoxy)-, disodium salt	Benzene-sulfonates			Yes		
28553-12-0	1,2-Benzenedicarboxylic acid, diisononyl ester	Phthalates			Yes		EC

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29385-43-1	1H-Benzotriazole, 4(or 5)-methyl-	Benzotriazoles			Yes		
34590-94-8	Propanol, 1(or 2)-(2-methoxymethylethoxy)-	Glycol ethers			Yes	Yes	
36653-82-4	1-Hexadecanol	Alcohols			Yes	Yes	
ORGANOMETALLICS							
78-00-2	Plumbane, tetraethyl-	Lead			Yes	Yes	
147-14-8	Copper, [29H,31H-phthalocyaninato(2-)-N29,N30,N31,N32]-, (SP-4-1)-	Copper-phthalo-cyanines			Yes		
4259-15-8	Zinc, bis[O,O-bis(2-ethylhexyl) phosphorodithioato-S,S']-,(T-4)-	Zinc			Yes		
ORGANIC-METAL SALTS							
557-05-1	Octadecanoic acid, zinc salt	Zinc			Yes	Yes	
1103-38-4	1-Naphthalenesulfonic acid, 2-[(2-hydroxy-1-naphthalenyl)azo]-, barium salt (2:1)	Barium-azo-β-naphthols			Yes	Yes	
4485-12-5	Octadecanoic acid, lithium salt	Lithium					
5160-02-1	Benzenesulfonic acid, 5-chloro-2-[(2-hydroxy-1-naphthalenyl)azo]-4-methyl-, barium salt (2:1)	Barium-azo-β-naphthols			Yes		
7620-77-1	Octadecanoic acid, 12-hydroxy-, monolithium salt	Lithium			Yes		
POLYMERS							
9002-86-2	Ethene, chloro-, homopolymer	Polyolefins					
9002-88-4	Ethene, homopolymer	Polyolefins					
9002-89-5	Ethenol, homopolymer	Vinyl polymers					
9002-92-0	Poly(oxy-1,2-ethanediyl), α-dodecyl-ω-hydroxy-	Polyethers					
9002-93-1	Poly(oxy-1,2-ethanediyl), α-[4-(1,1,3,3-tetramethyl-butyl)phenyl]-ω-hydroxy-	Polyethers					
9003-01-4	2-Propenoic acid, homopolymer	Polyacrylates					
9003-04-7	2-Propenoic acid, homopolymer, sodium salt	Polyacrylates					
9003-05-8	2-Propenamide, homopolymer	Polyamides					

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9003-07-0	1-Propene, homopolymer	Polyolefins					
9003-08-1	1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde	Polyamines					
9003-11-6	Oxirane, methyl-, polymer with oxirane	Polyethers					
9003-17-2	1,3-Butadiene, homopolymer	Polyolefins					
9003-18-3	2-Propenenitrile, polymer with 1,3-butadiene	Acrylonitrile–butadiene copolymers					
9003-20-7	Acetic acid, ethenyl ester, homopolymer	Vinyl polymers					
9003-22-9	Acetic acid, ethenyl ester, polymer with chloroethene	Vinyl polymers					
9003-27-4	1-Propene, 2-methyl-, homopolymer	Polyolefins					
9003-28-5	1-Butene, homopolymer	Polyolefins					
9003-29-6	Butene, homopolymer	Polyolefins					
9003-31-0	1,3-Butadiene, 2-methyl-, homopolymer	Polyolefins					
9003-35-4	Phenol, polymer with formaldehyde	Phenol–formaldehyde copolymers					
9003-39-8	2-Pyrrolidinone, 1-ethenyl-, homopolymer	Vinyl polymers					
9003-49-0	2-Propenoic acid, butyl ester, homopolymer	Polyacrylates					
9003-53-6	Benzene, ethenyl-, homopolymer	Polystyrenes					
9003-55-8	Benzene, ethenyl-, polymer with 1,3-butadiene	Polystyrenes					
9003-56-9	2-Propenenitrile, polymer with 1,3-butadiene and ethenylbenzene	Acrylonitrile–butadiene–styrene copolymers					
9004-82-4	Poly(oxy-1,2-ethanediyl), α-sulfo-ω-(dodecyloxy)-, sodium salt	Polyethers			Yes		
9005-09-8	2-Butenedioic acid (Z)-, polymer with chloroethene and ethenyl acetate	Polycarboxylates					
9006-26-2	2,5-Furandione, polymer with ethane	Polycarboxylates					
9008-63-3	Naphthalenesulfonic acid, sodium salt, polymer with formaldehyde	Polysulfonates					

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9010-77-9	2-Propenoic acid, polymer with ethene	Polyacrylates					
9010-79-1	1-Propene, polymer with ethane	Polyolefins					
9010-85-9	1,3-Butadiene, 2-methyl-, polymer with 2-methyl-1-propene	Polyolefins					
9010-86-0	2-Propenoic acid, ethyl ester, polymer with ethane	Polyacrylates					
9010-88-2	2-Propenoic acid, 2-methyl-, methyl ester, polymer with ethyl 2-propenoate	Polymethacrylates					
9010-98-4	1,3-Butadiene, 2-chloro-, homopolymer	Polyolefins					
9011-05-6	Urea, polymer with formaldehyde	Polyurethanes					
9011-14-7	2-Propenoic acid, 2-methyl-, methyl ester, homopolymer	Polymethacrylates					
9011-15-8	2-Propenoic acid, 2-methyl-, 2-methylpropyl ester, homopolymer	Polymethacrylates					
9011-17-0	1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene	Polyolefins					
9016-45-9	Poly(oxy-1,2-ethanediyl), α-(nonylphenyl)-ω-hydroxy-	Polyethers	Yes		Yes		
9017-27-0	Benzene, ethenylmethyl-, polymer with (1-methylethenyl)benzene	Polystyrenes					
9036-19-5	Poly(oxy-1,2-ethanediyl), α-[(1,1,3,3-tetramethyl-butyl)phenyl]-ω-hydroxy-	Polyethers					
9038-95-3	Oxirane, methyl-, polymer with oxirane, monobutyl ether	Polyethers					
9049-71-2	Poly[oxy(methyl-1,2-ethanediyl)], α-hydro-ω-hydroxy-, ether with β-D-fructofuranosyl α-D-glucopyranoside	Polyethers					
9051-57-4	Poly(oxy-1,2-ethanediyl), α-sulfo-ω-(nonylphenoxy)-, ammonium salt	Polyethers	Yes				
9082-00-2	Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1)	Polyethers					

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9084-06-4	Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	Polysulfonates				Yes	
24937-78-8	Acetic acid, ethenyl ester, polymer with ethane	Vinyl polymers					
24938-91-8	Poly(oxy-1,2-ethanediyl), α-tridecyl-ω-hydroxy-	Polyethers					
25014-31-7	Benzene, (1-methylethenyl)-, homopolymer	Polystyrenes					
25035-68-1	2-Propenoic acid, 2-methyl-, polymer with ethenylbenzene and ethyl 2-propenoate	Polymethacrylates					
25035-69-2	2-Propenoic acid, 2-methyl-, polymer with butyl 2-propenoate and methyl 2-methyl-2-propenoate	Polymethacrylates					
25035-90-9	2-Butenedioic acid (Z)-, dibutyl ester, polymer with ethenylacetate	Polycarboxylates					
25036-25-3	Phenol, 4,4'-(1-methylethyl-idene)bis-, polymer with 2,2'-[(1-methyl-ethylidene)bis(4,1-phen-yleneoxymethylene)]-bis[oxirane]	Polyethers					
25037-66-5	1,3-Isobenzofurandione, polymer with 2,5-furandione and 1,2-propanediol	Polyesters					
25038-36-2	Bicyclo[2.2.1]hept-2-ene, 5-ethylidene-, polymer with ethene and 1-propene	Polyolefins					
25038-37-3	1,4-Hexadiene, polymer with ethene and 1-propene	Polyolefins					
25038-54-4	Poly[imino(1-oxo-1,6-hexanediyl)]	Polyamines					
25038-59-9	Poly(oxy-1,2-ethanediyloxycarbonyl-1,4-phenylenecarbonyl)	Polyethers					
25067-01-0	2-Propenoic acid, butyl ester, polymer with ethenyl acetate	Polyacrylates					
25068-38-6	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane	Polyethers					

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25085-02-3	2-Propenoic acid, sodium salt, polymer with 2-propenamide	Polyacrylates					
25085-99-8	Oxirane, 2,2'-[(1-methyl-ethylidene)bis(4,1-phen-yleneoxymethylene)]bis-, homopolymer	Polyethers					
25087-34-7	1-Butene, polymer with ethane	Polyolefins					
25133-97-5	2-Propenoic acid, 2-methyl-, polymer with ethyl 2-propenoate and methyl 2-methyl-2-propenoate	Polymethacrylates					
25213-24-5	Acetic acid, ethenyl ester, polymer with ethanol	Vinyl polymers					
25322-68-3	Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-	Polyethers			Yes		
25322-69-4	Poly[oxy(methyl-1,2-ethanediyl)], α-hydro-ω-hydroxy-	Polyethers			Yes		
25608-33-7	2-Propenoic acid, 2-methyl-, butyl ester, polymer with methyl 2-methyl-2-propenoate	Polymethacrylates					
25791-96-2	Poly[oxy(methyl-1,2-ethanediyl)], α,α',α''-1,2,3-propanetriyltris[ω-hydroxy-	Polyethers					
25852-37-3	2-Propenoic acid, 2-methyl-, methyl ester, polymer with butyl 2-propenoate	Polymethacrylates					
25950-34-9	1,3-Benzenedicarboxylic acid, polymer with 2,2-dimethyl-1,3-propanediol, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol and hexanedioic acid	Polyesters					
25987-30-8	2-Propenoic acid, polymer with 2-propenamide, sodium salt	Acrylate–acrylamide copolymers					
25987-66-0	2-Propenoic acid, 2-methyl-, polymer with butyl 2-propenoate, ethenylbenzene and methyl 2-methyl-2-propenoate	Polymethacrylates					

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26006-22-4	Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, methyl sulfate, polymer with 2-propenamide	Polyamines					
26027-38-3	Poly(oxy-1,2-ethanediyl), α-(4-nonylphenyl)-ω-hydroxy-	Polyethers	Yes				
26062-79-3	2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer	Polyamines					
26300-51-6	2-Propenoic acid, 2-methyl-, methyl ester, polymer with butyl 2-propenoate and 2-propenoic acid	Polymethacrylates					
26301-26-8	1,3-Benzenedicarboxylic acid, polymer with 2,5-furandione and 1,2-propanediol	Polyesters					
26376-86-3	2-Propenoic acid, ethyl ester, polymer with 2-ethylhexyl 2-propenoate	Polyacrylates					
26780-96-1	Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer	Polyamines					
28064-14-4	Phenol, polymer with formaldehyde, glycidyl ether	Phenol–formaldehyde copolymers					
30525-89-4	Paraformaldehyde	Organic					
32131-17-2	Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl]	Polyamines			Yes		
35429-19-7	Ethanaminium, N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]-, chloride, polymer with 2-propenamide	Polyamines					
36290-04-7	2-Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	Polysulfonates				Yes	
36484-54-5	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and methyloxirane	Polyethers					

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37199-81-8	2,5-Furandione, polymer with 2,4,4-trimethylpentene, sodium salt	Polycarboxylates					
37625-93-7	2-Propenoic acid, polymer with (chloromethyl)oxirane and 4,4'-(1-methylethyli-dene)bis[phenol]	Polyacrylates					
39382-25-7	2-Butenedioic acid, (E)-, polymer with α,α'-[(1-methylethylidene)di-4,1-phenylene]bis[hydroxy-poly[oxy(methyl-1,2-ethanediyl)]]	Polycarboxylates					
42751-79-1	1,2-Ethanediamine, polymer with (chloromethyl)oxirane and N-methylmethanamine	Polyamines					
52624-57-4	Oxirane, methyl-, polymer with oxirane, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)	Polyethers					
54579-44-1	Formaldehyde, polymer with 4-(1,1-dimethylethyl)phenol and 4,4'-(1-methyl-ethylidene)bis[phenol]	Phenol–formaldehyde copolymers					
65997-11-7	Rosin, fumarated, polymer with pentaerythritol	Polyesters					
66070-60-8	Soybean oil, polymer with pentaerythritol and phthalic anhydride	Polyesters					
66070-62-0	Fatty acids, tall oil, polymer with glycerol, pentaerythritol and phthalic anhydride	Polyesters					
66070-65-3	Linseed oil, polymer with glycerol, pentaerythritol, phthalic anhydride and soybean oil	Polyesters					
66070-71-1	Fatty acids, tall oil, polymer with glycerol and phthalic anhydride	Polyesters					
67700-76-9	Soybean oil, polymer with ethylene glycol, pentaerythritol and phthalic anhydride	Polyesters					
67700-92-9	Fatty acids, tall oil, polymer with pentaerythritol and phthalic anhydride	Polyesters					

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67761-98-2	Fatty acids, tall oil, polymer with ethylene glycol, pentaerythritol and phthalic anhydride	Polyesters					
67762-15-6	Soybean oil, polymer with maleic anhydride, penta-erythritol and phthalic anhydride	Polyesters					
68002-19-7	Urea, polymer with formaldehyde, butylated	Polyurethanes					
68002-20-0	1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde, methylated	Polyamines					
68002-25-5	1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde, butylated	Polyamines					
68037-01-4	1-Decene, homopolymer, hydrogenated	Polyolefins					
68038-41-5	Rosin, maleated, polymer with glycerol	Polyesters					
68240-01-7	4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro-, polymer with ethenylbenzene, ethenylmethylbenzene, 1H-indene and (1-methyl-ethenyl)benzene	Polystyrenes					
68333-69-7	Rosin, maleated, polymer with pentaerythritol	Polyesters					
68441-17-8	Ethene, homopolymer, oxidized	Polyolefins					
68554-65-4	Siloxanes and silicones, diMe, polymer with Me silsesquioxanes and polyethylene-polypropylene glycol mono-Bu ether	Polysiloxanes					
UVCBS							
1302-78-9	Bentonite	Unsorted					
1312-76-1	Silicic acid, potassium salt	Silicones & siloxanes				Yes	
1327-43-1	Silicic acid, aluminum magnesium salt	Silicones & siloxanes					
1332-58-7	Kaolin	Inorganics					
1333-86-4	Carbon black	Inorganics			Yes	Yes	
1335-30-4	Silicic acid, aluminum salt	Silicones & siloxanes					

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1338-24-5	Naphthenic acids	Petroleums			Yes		
1343-88-0	Silicic acid, magnesium salt	Silicones & siloxanes					
1344-00-9	Silicic acid, aluminum sodium salt	Silicones & siloxanes				Yes	
1344-09-8	Silicic acid, sodium salt	Silicones & siloxanes				Yes	
1344-37-2	C.I. Pigment Yellow 34	Dyes & pigments				Yes	
1344-95-2	Silicic acid, calcium salt	Silicones & siloxanes				Yes	
8001-21-6	Sunflower oil	Biologicals			Yes		
8001-22-7	Soybean oil	Biologicals			Yes		
8001-26-1	Linseed oil	Biologicals			Yes		
8001-29-4	Cottonseed oil	Biologicals			Yes		
8001-30-7	Corn oil	Biologicals			Yes		
8001-31-8	Coconut oil	Biologicals			Yes	Yes	
8001-78-3	Castor oil, hydrogenated	Biologicals			Yes	Yes	
8002-03-7	Peanut oil	Biologicals			Yes		
8002-05-9	Petroleum	Petroleums			Yes		
8002-09-3	Oils, pine	Biologicals			Yes		
8002-26-4	Tall oil	Biologicals			Yes	Yes	
8002-43-5	Lecithins	Biologicals			Yes		
8002-53-7	Montan wax	Biologicals					
8002-74-2	Paraffin waxes and hydrocarbon waxes	Petroleums			Yes		
8006-64-2	Turpentine, oil	Biologicals			Yes	Yes	
8007-01-0	Oils, rose	Biologicals					
8007-02-1	Oils, lemongrass	Biologicals					
8007-43-0	Sorbitan, (Z)-9-octadecenoate (2:3)	Biologicals			Yes		
8007-45-2	Tar, coal	Petroleums			Yes	Yes	
8008-20-6	Kerosine (petroleum)	Petroleums			Yes		
8008-52-4	Oils, coriander	Biologicals					
8008-57-9	Oils, orange, sweet	Biologicals			Yes		
8009-03-8	Petrolatum	Petroleums			Yes		
8012-95-1	Paraffin oils	Petroleums					
8013-07-8	Soybean oil, epoxidized	Biologicals			Yes	Yes	
8016-28-2	Oils, lard	Biologicals			Yes		
8016-88-4	Oils, tarragon	Biologicals					
8022-96-6	Oils, jasmine	Biologicals					
8023-75-4	Oils, jonquil	Biologicals					
8023-79-8	Oils, glyceridic, palm kernel	Biologicals			Yes	Yes	
8024-05-3	Oils, tuberose	Biologicals					
8024-06-4	Oils, vanilla	Biologicals					

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8024-08-6	Oils, violet	Biologicals					
8024-43-9	Perfumes and essences, jasmin	Biologicals					
8029-43-4	Syrups, hydrolysed starch	Biologicals			Yes		
8030-12-4	Tallow, hydrogenated	Biologicals			Yes	Yes	
8030-30-6	Naphtha	Petroleums			Yes		
8032-32-4	Ligroine	Petroleums			Yes	Yes	
8042-47-5	White mineral oil (petroleum)	Petroleums			Yes		
8050-09-7	Rosin	Biologicals			Yes	Yes	
8050-26-8	Resin acids and rosin acids, esters with pentaerythritol	Biologicals			Yes	Yes	
8050-31-5	Resin acids and rosin acids, esters with glycerol	Biologicals			Yes	Yes	
8052-10-6	Tall oil rosin	Biologicals			Yes	Yes	
8052-41-3	Stoddard solvent	Petroleums			Yes	Yes	
8052-42-4	Asphalt	Petroleums			Yes		
8052-48-0	Fatty acids, tallow, sodium salts	Biologicals			Yes	Yes	
8061-51-6	Lignosulfonic acid, sodium salt	Biologicals					
8061-52-7	Lignosulfonic acid, calcium salt	Biologicals			Yes		
8061-53-8	Lignosulfonic acid, ammonium salt	Biologicals					
8062-15-5	Lignosulfonic acid	Biologicals					
9000-30-0	Guar gum	Biologicals					
9000-70-8	Gelatins	Biologicals					
9000-71-9	Caseins	Biologicals					
9004-32-4	Cellulose, carboxymethyl ether, sodium salt	Biologicals					
9004-34-6	Cellulose	Biologicals					
9004-35-7	Cellulose, acetate	Biologicals					
9004-36-8	Cellulose, acetate butanoate	Biologicals					
9004-39-1	Cellulose, acetate propanoate	Biologicals					
9004-53-9	Dextrin	Biologicals					
9004-57-3	Cellulose, ethyl ether	Biologicals					
9004-58-4	Cellulose, ethyl 2-hydroxyethyl ether	Biologicals					
9004-62-0	Cellulose, 2-hydroxyethyl ether	Biologicals					
9004-64-2	Cellulose, 2-hydroxypropyl ether	Biologicals					

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9004-65-3	Cellulose, 2-hydroxypropyl methyl ether	Biologicals					
9004-67-5	Cellulose, methyl ether	Biologicals					
9004-70-0	Cellulose, nitrate	Biologicals					
9005-25-8	Starch	Biologicals					
9005-64-5	Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivatives	Biologicals					
9005-65-6	Sorbitan, mono-9-octadecenoate, poly(oxy-1,2-ethanediyl) derivatives, (Z)-	Biologicals					
9005-67-8	Sorbitan, monooctadecanoate, poly(oxy-1,2-ethanediyl) derivatives	Biologicals			Yes		
9007-13-0	Resin acids and rosin acids, calcium salts	Biologicals					
9007-34-5	Collagens	Biologicals					
9016-87-9	Isocyanic acid, polymethylenepoly-phenylene ester	Unsorted					
9037-22-3	Amylopectin	Biologicals					
9050-36-6	Maltodextrin	Biologicals			Yes		
11138-66-2	Xanthan gum	Biologicals					
12001-26-2	Mica-group minerals	Unsorted					
12001-85-3	Naphthenic acids, zinc salts	Acids			Yes		
12238-31-2	C.I. Pigment Red 52:2	Dyes & pigments					
12656-85-8	C.I. Pigment Red 104	Dyes & pigments				Yes	
12713-03-0	Umber	Unsorted					
12736-96-8	Silicic acid, aluminum potassium sodium salt	Silicones & siloxanes					
37300-23-5	C.I. Pigment Yellow 36	Dyes & pigments					
39421-75-5	Guar gum, 2-hydroxypropyl ether	Biologicals					
51274-00-1	C.I. Pigment Yellow 42	Dyes & pigments			Yes		
53124-00-8	Starch, hydrogen phosphate, 2-hydroxypropyl ether	Biologicals					
57455-37-5	C.I. Pigment Blue 29	Dyes & pigments					
61788-46-3	Amines, coco alkyl	Amines, amides; tallow derivatives			Yes	Yes	
61788-47-4	Fatty acids, coco	Biologicals			Yes	Yes	
61788-76-9	Alkanes, chloro	Halogenated, aliphatic			Yes	Yes	
61788-89-4	Fatty acids, C18-unsaturated, dimers	Biologicals			Yes		

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61789-31-9	Fatty acids, coco, sodium salts	Biologicals			Yes	Yes	
61789-36-4	Naphthenic acids, calcium salts	Acids					
61789-80-8	Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, chlorides	Quaternary ammonium & tallow derivatives			Yes		
61789-86-4	Sulfonic acids, petroleum, calcium salts	Unsorted			Yes	Yes	
61789-97-7	Tallow	Biologicals			Yes	Yes	
61790-12-3	Fatty acids, tall oil	Biologicals			Yes	Yes	
61790-14-5	Naphthenic acids, lead salts	Acids					
61790-44-1	Fatty acids, tall oil, potassium salts	Biologicals			Yes		
61790-48-5	Sulfonic acids, petroleum, barium salts	Unsorted			Yes		
61790-51-0	Resin acids and rosin acids, sodium salts	Biologicals			Yes	Yes	
61790-59-8	Amines, hydrogenated tallow alkyl, acetates	Amines, amides; tallow derivatives					
61790-88-3	Fatty acids, tall oil, triesters with sorbitan, ethoxylated	Biologicals					
61791-00-2	Fatty acids, tall oil, ethoxylated	Biologicals					
61791-01-3	Fatty acids, tall oil, diesters with polyethylene glycol	Biologicals			Yes		
61791-12-6	Castor oil, ethoxylated	Biologicals					
61791-26-2	Amines, tallow alkyl, ethoxylated	Amines, amides; tallow derivatives					
61791-31-9	Ethanol, 2,2'-iminobis-, N-coco alkyl derivatives	Alcohols & ethoxylated products			Yes	Yes	
61791-55-7	Amines, N-tallow alkyltrimethylenedi-	Amines, amides; tallow derivatives			Yes	Yes	
63148-62-9	Siloxanes and silicones, diMe	Silicones & siloxanes					
63231-60-7	Paraffin waxes and hydrocarbon waxes, microcryst.	Petroleums			Yes		
63231-67-4	Silica gel	Silicones & siloxanes					
63449-39-8	Paraffin waxes and hydrocarbon waxes, chloro	Petroleums			Yes	Yes	
64147-40-6	Castor oil, dehydrated	Biologicals			Yes		

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64741-41-9	Naphtha (petroleum), heavy straight-run	Petroleums			Yes		
64741-42-0	Naphtha (petroleum), full-range straight-run	Petroleums			Yes		
64741-43-1	Gas oils (petroleum), straight-run	Petroleums			Yes		
64741-44-2	Distillates (petroleum), straight-run middle	Petroleums			Yes		
64741-45-3	Residues (petroleum), atm. tower	Petroleums			Yes		
64741-46-4	Naphtha (petroleum), light straight-run	Petroleums			Yes		
64741-47-5	Natural gas condensates (petroleum)	Petroleums			Yes		
64741-53-3	Distillates (petroleum), heavy naphthenic	Petroleums			Yes		
64741-54-4	Naphtha (petroleum), heavy catalytic cracked	Petroleums			Yes		
64741-55-5	Naphtha (petroleum), light catalytic cracked	Petroleums			Yes		
64741-56-6	Residues (petroleum), vacuum	Petroleums			Yes		
64741-57-7	Gas oils (petroleum), heavy vacuum	Petroleums			Yes		
64741-59-9	Distillates (petroleum), light catalytic cracked	Petroleums			Yes		
64741-62-4	Clarified oils (petroleum), catalytic cracked	Petroleums			Yes		
64741-63-5	Naphtha (petroleum), light catalytic reformed	Petroleums			Yes	Yes	
64741-65-7	Naphtha (petroleum), heavy alkylate	Petroleums			Yes	Yes	
64741-67-9	Residues (petroleum), catalytic reformer fractionator	Petroleums			Yes		
64741-68-0	Naphtha (petroleum), heavy catalytic reformed	Petroleums			Yes		
64741-69-1	Naphtha (petroleum), light hydrocracked	Petroleums			Yes		
64741-72-6	Naphtha (petroleum), polymn.	Petroleums					
64741-79-3	Coke (petroleum)	Petroleums			Yes		
64741-81-7	Distillates (petroleum), heavy thermal cracked	Petroleums			Yes		

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64741-82-8	Distillates (petroleum), light thermal cracked	Petroleums			Yes		
64741-86-2	Distillates (petroleum), sweetened middle	Petroleums			Yes		
64741-88-4	Distillates (petroleum), solvent-refined heavy paraffinic	Petroleums			Yes		
64741-89-5	Distillates (petroleum), solvent-refined light paraffinic	Petroleums			Yes		
64741-95-3	Residual oils (petroleum), solvent deasphalted	Petroleums			Yes		
64741-96-4	Distillates (petroleum), solvent-refined heavy naphthenic	Petroleums			Yes		
64741-97-5	Distillates (petroleum), solvent-refined light naphthenic	Petroleums			Yes		
64742-01-4	Residual oils (petroleum), solvent-refined	Petroleums			Yes		
64742-04-7	Extracts (petroleum), heavy paraffinic distillate solvent	Petroleums			Yes		
64742-06-9	Extracts (petroleum), middle distillate solvent	Petroleums			Yes	Yes	
64742-16-1	Petroleum resins	Petroleums			Yes		
64742-23-0	Naphtha (petroleum), chemically neutralized light	Petroleums			Yes		
64742-30-9	Distillates (petroleum), chemically neutralized middle	Petroleums			Yes		
64742-34-3	Distillates (petroleum), chemically neutralized heavy naphthenic	Petroleums			Yes		
64742-40-1	Neutralizing agents (petroleum), spent sodium hydroxide	Petroleums			Yes		
64742-42-3	Hydrocarbon waxes (petroleum), clay-treated microcryst.	Petroleums			Yes		
64742-43-4	Paraffin waxes (petroleum), clay-treated	Petroleums			Yes		
64742-46-7	Distillates (petroleum), hydrotreated middle	Petroleums			Yes	Yes	
64742-47-8	Distillates (petroleum), hydrotreated light	Petroleums			Yes	Yes	

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64742-48-9	Naphtha (petroleum), hydrotreated heavy	Petroleums			Yes	Yes	
64742-49-0	Naphtha (petroleum), hydrotreated light	Petroleums			Yes	Yes	
64742-51-4	Paraffin waxes (petroleum), hydrotreated	Petroleums			Yes		
64742-52-5	Distillates (petroleum), hydrotreated heavy naphthenic	Petroleums			Yes		
64742-53-6	Distillates (petroleum), hydrotreated light naphthenic	Petroleums			Yes		
64742-54-7	Distillates (petroleum), hydrotreated heavy paraffinic	Petroleums			Yes		
64742-55-8	Distillates (petroleum), hydrotreated light paraffinic	Petroleums			Yes		
64742-56-9	Distillates (petroleum), solvent-dewaxed light paraffinic	Petroleums			Yes		
64742-57-0	Residual oils (petroleum), hydrotreated	Petroleums			Yes		
64742-61-6	Slack wax (petroleum)	Petroleums			Yes		
64742-62-7	Residual oils (petroleum), solvent-dewaxed	Petroleums			Yes		
64742-63-8	Distillates (petroleum), solvent-dewaxed heavy naphthenic	Petroleums			Yes		
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic	Petroleums			Yes		
64742-73-0	Naphtha (petroleum), hydrodesulfurized light	Petroleums			Yes		
64742-80-9	Distillates (petroleum), hydrodesulfurized middle	Petroleums			Yes	Yes	
64742-81-0	Kerosine (petroleum), hydrodesulfurized	Petroleums			Yes	Yes	
64742-88-7	Solvent naphtha (petroleum), medium aliph.	Petroleums			Yes	Yes	
64742-89-8	Solvent naphtha (petroleum), light aliph.	Petroleums			Yes	Yes	
64742-93-4	Asphalt, oxidized	Petroleums			Yes		
64742-94-5	Solvent naphtha (petroleum), heavy aromatic	Petroleums			Yes	Yes	
64742-95-6	Solvent naphtha (petroleum), light aromatic	Petroleums			Yes	Yes	

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64742-96-7	Solvent naphtha (petroleum), heavy aliphatic	Petroleums			Yes		
64743-05-1	Coke (petroleum), calcined	Petroleums			Yes		
65996-61-4	Pulp, cellulose	Biologicals					
65996-62-5	Starch, oxidized	Biologicals					
65996-63-6	Starch, acid-hydrolysed	Biologicals			Yes		
65996-93-2	Pitch, coal tar, high-temperature	Petroleums			Yes		
65997-04-8	Rosin, fumarated	Biologicals			Yes	Yes	
65997-05-9	Rosin, polymd.	Biologicals					
65997-06-0	Rosin, hydrogenated	Biologicals			Yes	Yes	
65997-15-1	Cement, portland, chemicals	Unsorted					
65997-16-2	Cement, alumina, chemicals	Unsorted					
65997-17-3	Glass, oxide, chemicals	Inorganics					
65997-18-4	Frits, chemicals	Inorganics					
66071-92-9	Sulfite liquors and cooking liquors, spent	Unsorted			Yes		
66071-96-3	Glutens, corn	Biologicals					
66402-68-4	Ceramic materials and wares, chemicals	Unsorted					
66455-14-9	Alcohols, C12–13, ethoxylated	Alcohols & ethoxylated products					
67701-03-5	Fatty acids, C16–18	Biologicals			Yes	Yes	
67762-19-0	Poly(oxy-1,2-ethanediyl), α-sulfo-ω-hydroxy-, C10–16-alkyl ethers, ammonium salts	Polymers			Yes		
67762-30-5	Alcohols, C14–18	Alcohols & ethoxylated products			Yes	Yes	
67762-90-7	Siloxanes and silicones, diMe, reaction products with silica	Silicones & siloxanes					
67774-74-7	Benzene, C10–13-alkyl derivatives	Petroleums			Yes		
68002-97-1	Alcohols, C10–16, ethoxylated	Alcohols & ethoxylated products					
68037-64-9	Siloxanes and silicones, diMe, Me hydrogen, reaction products with polyethylene-polypropylene glycol monoacetate allylether	Silicones & siloxanes					
68131-31-7	Sulfite liquors and cooking liquors, spent, alkali-treated	Unsorted					

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68131-37-3	Syrups, corn, dehydrated	Biologicals					
68131-39-5	Alcohols, C12–15, ethoxylated	Alcohols & ethoxylated products					
68153-22-0	Paraffin waxes and hydrocarbon waxes, oxidized	Petroleums			Yes		
68187-11-1	C.I. Pigment Blue 36	Dyes & pigments					
68213-23-0	Alcohols, C12–18, ethoxylated	Alcohols & ethoxylated products					
68333-88-0	Aromatic hydrocarbons, C9–17	Petroleums			Yes		
68334-30-5	Fuels, diesel	Petroleums			Yes		
68391-11-7	Pyridine, alkyl derivatives	Unsorted			Yes	Yes	
68410-23-1	Fatty acids, C18-unsaturated, dimers, reaction products with polyethylene-polyamines	Biologicals			Yes		
68410-99-1	Alkenes, polymd., chlorinated	Polymers					
68411-30-3	Benzenesulfonic acid, C10–13-alkyl derivatives, sodium salts	Linear alkyl benzene sulfonates				Yes	
68412-54-4	Poly(oxy-1,2-ethanediyl), α-(nonylphenyl)-ω-hydroxy-, branched	Polymers					
68439-45-2	Alcohols, C6–12, ethoxylated	Alcohols & ethoxylated products					
68439-46-3	Alcohols, C9–11, ethoxylated	Alcohols & ethoxylated products					
68439-50-9	Alcohols, C12–14, ethoxylated	Alcohols & ethoxylated products					
68439-57-6	Sulfonic acids, C14–16-alkane hydroxy and C14–16-alkene, sodium salts	Unsorted			Yes	Yes	
68476-03-9	Fatty acids, montan-wax	Biologicals			Yes		
68476-30-2	Fuel oil, no. 2	Petroleums			Yes		
68476-34-6	Fuels, diesel, no. 2	Petroleums			Yes		
68476-86-8	Petroleum gases, liquefied, sweetened	Petroleums			Yes		

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68477-31-6	Distillates (petroleum), catalytic reformer fractionator residue, low-boiling	Petroleums			Yes	Yes	
68477-77-0	Gases (petroleum), catalytic reformed naphtha stripper overheads	Petroleums			Yes		
68513-02-0	Naphtha (petroleum), full-range coker	Petroleums			Yes		
68553-00-4	Fuel oil, no. 6	Petroleums			Yes		
68584-22-5	Benzenesulfonic acid, C10–16-alkyl derivs.	Linear alkyl benzene sulfonates			Yes	Yes	
68585-34-2	Poly(oxy-1,2-ethanediyl), α-sulfo-ω-hydroxy-, C10–16-alkyl ethers, sodium salts	Polymers			Yes		
68603-15-6	Alcohols, C6–12	Alcohols & ethoxylated products			Yes	Yes	
68603-42-9	Amides, coco, N,N-bis(hydroxyethyl)	Amines, amides; tallow derivatives			Yes	Yes	
68608-26-4	Sulfonic acids, petroleum, sodium salts	Unsorted			Yes	Yes	
68648-87-3	Benzene, C10–16-alkyl derivatives	Petroleums			Yes		
68649-11-6	1-Decene, dimer, hydrogenated	Hydrocarbons, aliphatic			Yes		
68649-12-7	1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated	Hydrocarbons, aliphatic			Yes		
68649-42-3	Phosphorodithioic acid, o,o-di-C1–14-alkyl esters, zinc salts	Acids			Yes	Yes	
68784-26-9	Phenol, dodecyl-, sulfurized, carbonates, calcium salts, overbased	Phenolics			Yes	Yes	
68855-54-9	Kieselguhr, soda ash flux-calcined	Inorganics					
68909-18-2	Pyridinium, 1-(phenylmethyl)-, Et Me derivatives, chlorides	Unsorted			Yes	Yes	
68909-77-3	Ethanol, 2,2'-oxybis-, reaction products with ammonia, morpholine derivative residues	Reaction products			Yes		

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68915-97-9	Gas oils (petroleum), straight-run, high-boiling	Petroleums			Yes		
68919-37-9	Naphtha (petroleum), full-range reformed	Petroleums			Yes		
68937-41-7	Phenol, isopropylated, phosphate (3:1)	Phenolics			Yes	Yes	
68951-67-7	Alcohols, C14–15, ethoxylated	Alcohols & ethoxylated products					
68953-58-2	Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, salts with bentonite	Quaternary ammonium & tallow derivatives			Yes	Yes	
68955-35-1	Naphtha (petroleum), catalytic reformed	Petroleums			Yes		
68955-53-3	Amines, C12–14-tert-alkyl	Amines, amides; tallow derivatives			Yes		
68990-53-4	Glycerides, C14–22 mono-	Biologicals			Yes		
69430-24-6	Cyclosiloxanes, diMe	Silicones & siloxanes					
70131-50-9	Bentonite, acid-leached	Unsorted			Yes		
70131-67-8	Siloxanes and silicones, diMe, hydroxy-terminated	Silicones & siloxanes					
70592-78-8	Distillates (petroleum), vacuum	Petroleums			Yes		
70693-06-0	Aromatic hydrocarbons, C9–11	Petroleums			Yes	Yes	
70914-12-4	Siloxanes and silicones, diMe, 3-hydroxypropyl Me, ethers with polyethylene glycol acetate	Silicones & siloxanes					
93763-70-3	Perlite, expanded	Unsorted					
112926-00-8	Silica gel, pptd., cryst.-free	Silicones & siloxanes					
112945-52-5	Silica, amorphous, fumed, cryst.-free	Silicones & siloxanes					

Note: EC = Environment Canada; HC = Health Canada.

Appendix B: Tables of Functional Use Codes, Industrial Sector Codes and Quantity Codes

Table B1: Use codes for DSL report forms

Special Use Codes	
00	Research and development
01	Site-limited substance
Functional Use Codes	
02	Absorbent/adsorbent
03	Abrasive
04	Adhesive/binder/sealant/filler
05	Analytical reagent
06	Antifreeze/coolant/deicer
07	Antioxidant/corrosion inhibitor/tarnish inhibitor/scavanger/antiscaling agent
08	Catalyst/accelerator/initiator/activator
09	Catalyst support/chromatography support
10	Chemical intermediate - organic
11	Chemical intermediate - inorganic, organometallic
12	Coagulant/coalescent
13	Colorant - pigment/stain/dye/ink
14	Defoamer/emulsion breaker
15	Drilling mud additive/oil recovery agent/oil well treating agent
16	Fertilizer
17	Finishing agent
18	Flame retardant/fire extinguishing agent
19	Flocculating/precipitating/clarifying agent
20	Flotation agent
21	Formulation component
22	Fragrance/perfume/deodourizer/flavouring agent
23	Fuel/fuel additive
24	Functional fluid, i.e., hydraulic, dielectric, or their additives
25	Humectant/dewatering aid/dehumidifier/dehydrating agent
26	Ion exchange agent
27	Lubricating agent/lubricant additive/mould release agent
28	Monomer
29	Oxidizing agent
30	Paint/coating additive
31	Pesticide/herbicide/biocide/disinfectant/repellant/attractant
32	Photosensitive agent - fluorescent agent/brightener/UV absorber
33	Plasticizer
34	Polymer additive
35	Polymer, component of an article

36	Polymer, component of a formulation
37	Polymer, crosslinking agent
38	Propellant/blowing agent
39	Preservative
40	Processing aid
41	Reducing agent
42	Refrigerant
43	Sequestering agent
44	Solvent/carrier
45	Stripper/etcher/discharge printing agent/de-inker
46	Surfactant – detergent/emulsifier/wetting agent/dispersant
47	Tarnish remover/rust remover/descaling agent
48	Viscosity adjuster
49	Water repellant/drainage aid
50	Water or waste treatment chemical
51	Function other than that listed in codes 02 to 50
Industrial Sector Codes	
52	Adhesive and sealant production
53	Agriculture, field crops
54	Agriculture, other
55	Article manufacture
56	Automotive, aircraft and watercraft
57	Biotechnology
58	Chlor-alkali
59	Construction materials
60	Cosmetics
61	Electrical or electronic products
62	Explosive materials
63	Fertilizer
64	Forestry/wood products/wood treatment
65	Food, feed, and beverage
66	Health and veterinary
67	Industrial gas production
68	Inorganic chemicals
69	Magnetic tape manufacture
70	Leather/tanning
71	Metallurgical
72	Mining, metal and non-metal
73	Non-metallic mineral products, abrasive
74	Non-metallic mineral products, ceramic and glass
75	Non-metallic mineral products, other
76	Organic chemicals, industrial

77	Organic chemicals, speciality
78	Organometallic chemicals
79	Packaging
80	Paint and coating
81	Pest control products/formulating and manufacture
82	Petroleum and natural gas
83	Pharmaceuticals
84	Photographic/photocopier
85	Pigment, dye and printing ink
86	Plastics
87	Plastic and synthetic resin
88	Plating and surface finishing
89	Printing and publishing
90	Pulp and paper
91	Refined petroleum and coal products
92	Rubber products
93	Soap and cleaning products
94	Textile, primary manufacture
95	Textile, product
96	Transportation
97	Water and waste treatment
98	Used in an industry other than those specified in codes 51–97

Table B2: Quantity codes (1986 data)

Quantity code	Quantity range (kg)
A	Under 100
B	100 – 1 000
C	1 000 – 10 000
D	10 000 – 100 000
E	100 000 – 1 000 000
F	1 000 000 – 10 000 000
G	over 10 000 000
N	Nil[a]

[a] Substance does not meet eligibility criteria in 1986, but did meet eligibility criteria in 1984 or 1985.

Appendix C: Development of the Use Code Indices and Ranking of Functional Use and Industrial Sector Codes for "Potential for Human Exposure"

Workshops to Consider DSL Use Codes

Two workshops were held to consider the use of functional use and industrial sector codes as indicators of "potential for human exposure." Participants in the first workshop, which was held on May 30, 2001, were government personnel involved in human health and environmental assessment. Participants in the second workshop, held on October 18, 2002, were industry representatives familiar with the manufacture and use of the substances on the DSL. Procedures in the second workshop were identical to those in the first, and the reports of both are available as supporting documentation to this proposal.

The objective of the workshops was to investigate the premise that some qualitative indication of the potential human exposure to a specific DSL substance can be inferred by consideration of some or all of the specific use codes reported by companies that were importing, manufacturing or using that substance when the DSL was compiled. Relevant background information was provided, and the participants were asked to evaluate whether the DSL functional use and industrial sector codes could reasonably be expected to represent "greatest," "intermediate" or "least" potential for human exposure, on the basis of "expert judgement" when evaluated against predefined criteria. The degrees of consensus concerning the potential for human exposure that might be inferred by each of the codes were determined by post-workshop analyses of worksheets completed by the participants, and an "exposure index" ranking for each substance on the DSL was established on this basis.

Ranking of the Use Codes

Based on preliminary inspection of the results from the two workshops, there were similarities between the combined ranking of the two expert groups. To investigate this similarity, paired ranking data were compared statistically using a chi-squared test. The results of this test indicated that for the 49 functional use codes ranked, 13 were ranked differently between the two workshops at the $p = 0.05$ level, and 0 were ranked differently at the $p = 0.01$ level. Similarly, for the 46 industrial sector codes ranked, 8 were ranked differently at the $p = 0.05$ level, with 1 being ranked differently at the $p = 0.01$ level. These differences can be ascribed to two factors:

- different numbers of participants in the two workshops (20 attendees at the government workshop and 13 attendees at the industry workshop); and
- different interpretations of the criteria for "potential for exposure"; the industry participants seemed to focus more on "consumer product" exposure, whereas the government participants interpreted the criteria more generally.

Overall, 21 of 95 codes evaluated were ranked differently at the p = 0.05 level, and only 1 of 95 was ranked differently at the p = 0.01 level. Based on the similarity of the remainder of the rankings (74 of 95), the results from the two workshops were combined.

Scaling factors were then assigned to each level of potential for exposure, namely 1 for "least," 10 for "intermediate" and 100 for "greatest." These factors were chosen to reflect the appropriate relative variation in exposure represented by the different categories. The results for each functional use and industrial sector code were then calculated and normalized to the number of workshop participants. Using this approach, the highest possible ranking would be 100 and the lowest 0. For example, if the survey results for a code were 10 "least's", 10 "intermediate's" and 13 "greatest's", the score would be:

$$\underset{\textit{least}}{(10 \times 1)} + \underset{\textit{intermediate}}{(10 \times 10)} + \underset{\textit{greatest}}{(13 \times 100)} = 1410$$

The 1410 score was then divided by 33 (the number of workshop participants) to arrive at a final ranking index of 42.7. The overall ranking indices calculated for each functional use or industrial sector code are listed below.

For use (U), all 22 264 substances on the DSL were ranked in descending order on the basis of their sums of normalized indices of expert-ranked functional use and industrial sector codes for each substance. The sum of the use indices for each substance ranged from 13 227 to 0.

Table C1: Ranking of functional use and industrial sector codes for "potential for human exposure"

Use code	Description	Ranking index	Normalized use code index
Functional use			
22	Fragrance/perfume/deodourizer/flavouring agent	3120	94.55
46	Surfactant - detergent/emulsifier/wetting agent/dispersant	2850	86.36
44	Solvent/carrier	2670	80.91
23	Fuel/fuel additive	2580	78.18
31	Pesticide/herbicide/biocide/disinfectant/repellant/ attractant	2580	78.18
39	Preservative	2571	77.91
30	Paint/coating additive	2283	69.18
13	Colourant - pigment/stain/dye/ink	2202	66.73
16	Fertilizer	1842	55.82
04	Adhesive/binder/sealant/filler	1806	54.73
21	Formulation component	1734	52.55
35	Polymer, component of an article	1716	52.00
32	Photosensitive agent - fluorescent agent/brightener/UV absorber	1599	48.45
06	Antifreeze/coolant/deicer	1455	44.09
50	Water or waste treatment chemical	1446	43.82
18	Flame retardant/fire extinguishing agent	1410	42.73

Use code	Description	Ranking index	Normalized use code index
33	Plasticizer	1401	42.45
27	Lubricating agent/lubricant additive/mould release agent	1347	40.82
38	Propellant/blowing agent	1311	39.73
47	Tarnish remover/rust remover/descaling agent	1068	32.36
02	Absorbent/adsorbent	1023	31.00
03	Abrasive	1023	31.00
17	Finishing agent	933	28.27
36	Polymer, component of a formulation	897	27.18
45	Stripper/etcher/discharge printing agent/de-inker	834	25.27
07	Antioxidant/corrosion inhibitor/tarnish inhibitor/ scavenger/antiscaling agent	816	24.73
49	Water repellant/drainage aid	708	21.45
12	Coagulant/coalescent	645	19.55
29	Oxidizing agent	627	19.00
25	Humectant/dewatering aid/dehumidifier/dehydrating agent	609	18.45
43	Sequestering agent	609	18.45
28	Monomer	591	17.91
48	Viscosity adjuster	582	17.64
14	Defoamer/emulsion breaker	564	17.09
24	Functional fluid, i.e., hydraulic, dielectric, or their derivatives	564	17.09
34	Polymer additive	492	14.91
37	Polymer, crosslinking agent	492	14.91
19	Flocculating/precipitating/clarifying agent	420	12.73
42	Refrigerant	393	11.91
41	Reducing agent	321	9.73
40	Processing aid	276	8.36
20	Flotation agent	204	6.18
05	Analytical reagent	159	4.82
08	Catalyst/accelerator/initiator/activator	87	2.64
26	Ion exchange agent	87	2.64
11	Chemical intermediate - inorganic, organometallic	69	2.09
10	Chemical intermediate - organic	60	1.82
15	Drilling mud additive/oil recovery agent/oil well treating agent	60	1.82
09	Catalyst support/chromatography support	42	1.27
Industrial sector			
93	Soap and cleaning products	2641	85.19
53	Agriculture, field crops	2551	82.29
82	Petroleum and natural gas	2443	78.81
60	Cosmetics	2272	73.29
65	Food, feed, and beverage	2254	72.71
81	Pest control products, formulating and manufacture	2182	70.39
91	Refined petroleum and coal products	2101	67.77
63	Fertilizer	2101	67.77
64	Forestry/wood products/wood treatment	2074	66.90
97	Water and waste treatment	2002	64.58

Use code	Description	Ranking index	Normalized use code index
54	Agriculture, other	1957	63.13
83	Pharmaceuticals	1903	61.39
96	Transportation	1786	57.61
80	Paint and coating	1714	55.29
90	Pulp and paper	1615	52.10
59	Construction materials	1525	49.19
58	Chlor-alkali	1435	46.29
66	Health and veterinary	1399	45.13
95	Textile, product	1381	44.55
89	Printing and publishing	1372	44.26
70	Leather/tanning	1165	37.58
67	Industrial gas production	1165	37.58
68	Inorganic chemicals	1147	37.00
72	Mining, metal and non-metal	1129	36.42
57	Biotechnology	1093	35.26
86	Plastics	1084	34.97
92	Rubber products	967	31.19
85	Pigment, dye and printing ink	967	31.19
56	Automotive, aircraft and watercraft	931	30.03
79	Packaging	931	30.03
87	Plastic and synthetic resin	913	29.45
78	Organometallic chemicals	814	26.26
94	Textile, primary manufacture	796	25.68
76	Organic chemicals, industrial	778	25.10
61	Electrical or electronic products	679	21.90
88	Plating and surface finishing	652	21.03
71	Metallurgical	652	21.03
74	Non-metallic mineral products, ceramic and glass	634	20.45
84	Photographic/photocopier	598	19.29
77	Organic chemicals, speciality	571	18.42
75	Non-metallic mineral products, other	436	14.06
73	Non-metallic mineral products, abrasive	436	14.06
55	Article manufacture	409	13.19
69	Magnetic tape manufacture	364	11.74
52	Adhesive and sealant production	328	10.58
62	Explosive materials	301	9.71