Utilization of the National Pollutant Release Inventory for Substances under Canada's Chemicals Management Plan

Submitted to:
Environment Canada

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Introduction

This paper examines the potential for using the National Pollutant Release Inventory (NPRI) as a public reporting mechanism on chemicals identified by Domestic Substances List (DSL) categorization. In addition, it supports the initial work of Environment Canada to investigate the results of categorization and the rationale to advance this work with effective engagement for the NPRI Working Group.

The categorization of 23,000 substances listed on the Domestic Substance List by Health Canada and Environment Canada has been a major achievement in taking stock of the thousands of substances that may be in commerce in Canada and identifying and prioritizing for further attention those substances of concern to human health and/or the environment. As a result of this work, over 4,000 substances have exhibited characteristics that may cause harm to human health and/or the environment and require

further action. This sobering finding speaks to the need to protect Canadians and their environment from risks associated with these chemicals and the need to establish an agenda that effectively aims to prevent releases and exposure of these substances and, in many cases, eliminating their use. It also speaks to the need to have on-going monitoring of the releases and transfers of these substances.

Under the Chemical Management Plan, announced in December 2006, these substances have been prioritized based primarily on the degree of risks /hazards posed and exposure data. Approximately 500 substances have been designated as high priorities for action. These substances are to be addressed through various mechanisms. In particular, and of relevance to this paper, are 193 of the high priority substances that are being addressed through a "Challenge" program[1]. These substances have characteristics that indicate they are persistent, bioaccumulative **and** inherently toxic to non-human organisms (PBiT), or pose a high hazard to human health (based on evidence of carcinogenicity, mutagenicity, developmental toxicity or reproductive toxicity)[2]. Another 2,600 are designated as "medium priority", while 1,200 are considered to be of "low concern".

The current focus of the government plan is on establishing management regimes over the next three years to address the substances identified under the "Challenge"[3]. As yet, no plan has been released to address those substances considered to be of "medium priority".

However, there is very limited information on many of the categorized substances and this information is not readily accessible to the public, nor in a form that is useful in terms of tracking releases of these substances to the environment, trends, pollution prevention actions and so on. Whatever measures are decided upon to "manage" these substances needs to be subject to public scrutiny. Public participation and access to information are critical components to ensure that there is effective engagement by the public.

Pollutant Inventories and the NPRI

Pollutant inventories, such as the NPRI, provide the public with access to information that is not otherwise readily available on releases and transfers of chemicals in their community, workplace or other areas in which they have a concern and interest.

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[1] Refer to www.chemicalsubstances.gc.ca for more information on the Challenge program. Other components to address the top priority substances include: significant new activity controls (SNACs), the petroleum sector stream, and substances that are already in the assessment and management stream.

[2] The evidence from categorization indicates that these 193 substances meet the criterion for toxicity (section 64 (a), (c), CEPA 1999. Note: The approach followed by Health Canada is not necessarily in keeping with the CEPA criteria for categorization since Health Canada combined hazard and exposure information to determine their priorities).

[3] These substances, along with their chemical profiles, are being published in batches of 15-30 substances every three months over a 3 year period. (Batch 1 was released February 3, 2007).

The NPRI is an annual mandatory facility-based public reporting system (under section 46, CEPA 1999). Presently, reporting to NPRI is required on 367 substances. For those facilities that meet reporting requirements, releases are reported to air, water, land, as well as transfers, disposal and recycling activities[4].

The NPRI is a useful tool to track emission trends, pollution prevention strategies, the environmental performance of specific industrial sectors; and in disseminating information to the public and raising public awareness. However, the NPRI is under-utilized in a number of ways, such as in its potential capacity to track progress in pollution prevention and is limited to release and transfer data for a select number of substances.

The NPRI should be considered as a useful and effective tool in providing some essential information on substances that have been identified through categorization, information that is otherwise lacking, outdated and not publicly transparent.

At the same time, in order to achieve its full potential to assist the "Challenge" Program, there are a number of areas in the NPRI program in which improvements are needed, such as, thresholds for reporting, removing exemptions for specific facilities, requiring more information on pollution prevention activities, and data quality.

Status of Categorized Substances Reported to the NPRI

Out of the 193 high priority substances listed in the "Challenge" program, 31 are listed on the NPRI as discrete substances. Another 19 substances may be found within groups of substances that are listed on the NPRI. For example, a survey of the 30 Batch 1 and Batch 2 substances indicates that 8 of the Batch 1 substances and 5 of those in Batch 2 are listed on the NPRI. These substances have been identified as a high hazard to humans and of high likelihood of exposure to Canadians. None are PBiTs[5].

But even for those substances listed on NPRI, the NPRI data on releases and transfers of Batch 1 substances is very limited.. This may possibly be attributed to the current NPRI threshold requirements for reporting (10 tonnes manufactured, produced or otherwise used for substances listed in Part 1[6]). This requires further investigation.

[4] Reporting is mainly triggered by a set of thresholds based on the amounts of the substance that is manufactured, produced or otherwise used, or in some cases, release levels.
[5] See attached spreadsheet on Batch 1 and 2 Substances and Substances in future batches.
[6] http://www.ec.gc.ca/pdb/npri/npri_online_data_e.cfm.

Relevancy of NPRI on other substances (PiTs, BiTs) identified through Categorization

The following subsections provide rationale to further government efforts in integrating the substances identified through categorization under NPRI program.

Contribution to development of management regimes

A number of the categorized substances designated as high priority lack information, have outdated information, or have no systematic method of tracking uses and releases. Such information would better inform strategies to "manage" these substances and serve as a means of validating whether such strategies are accomplishing what they are purported to do – such as virtual elimination, prohibition, pollution prevention, etc.

Other issues of concern regarding the substances identified through the categorization process include:

- Substances may no longer be found in commerce but may still be released to the environment
- There are no means of tracking these substances in products.
- Information on substances in the "Challenge" program is sparse and outdated (see technical profiles).
- There is no government plan to date as to how to deal with the 2,600 "medium priority" substances. Nor is there a mechanism to track these and low-priority substances.
- For some substances, there are no Chemical Abstract Service (CAS) numbers, which may be due to trade secrets. This is an obstacle to finding out information on such substances.

Coordination with existing questionnaire

NPRI-like information is requested for the voluntary "Challenge" questionnaire for high priority substances, but there are inconsistencies with thresholds for reporting to the NPRI and those thresholds in the questionnaire. There is value in addressing these inconsistencies at the beginning part of the process. Another issue of concern with the existing questionnaire relates to the voluntary nature of the questionnaire. It does not provide the public transparency of a mandatory system such as the NPRI.

Improving the NPRI program: Linking Categorized Substances to the NPRI

The results of categorization present an opportunity to improve the use and scope of NPRI. Over the years, stakeholders have expressed a need to use the data from NPRI to evaluate effectiveness of current policies and regulations aimed at management of toxic substances. The results of the categorization process and Canada's Chemical Management Plan have created some opportunities to track progress on reductions in releases of these substances, informing the priority setting process for moving toward screening assessments and decisions on these substances. At the same time, the dearth of

information and the lack of current information on some of the most hazardous substances identified by categorization stress the need for a mandatory reporting mechanism to track these substances.

Identifying substances for priority action

The proposed use of the rapid screening tool included in the Chemicals Management Plan to address substances of "low ecological concern" is a very specific aspect of the Plan that would benefit significantly from the utilization of the NPRI for updated data on releases and transfers of these substances. An NGO submission dated April 5th, 2007 on the proposed rapid screening approach outlined a list of concerns and expressed objections to the government proposal to use the rapid screening tool to "set aside" substances from further assessment. Instead, NGOs have expressed the need to use the rapid screening tool to *assist* in setting priorities for evaluation. The use of the NPRI to track such substances is viewed as a critical component of such an approach.[7]

Summary and Recommendations

Linking the categorized substances to the NPRI could be a strong component of the Public Right-to-Know. We support the following recommendations:

1) We support Environment Canada's activities and active participation by the NPRI Working Group to investigate the results of categorization for the purposes of adding these substances to the NPRI.

2) It is our position that the NPRI program should be expanded to include reporting of all substances identified through categorization. The challenge before the government is <u>not</u> a matter of which substances should be added to the NPRI but how these substances <u>can</u> be added and in what timeframe.
   i) It is essential that the 193 substances in the "Challenge" program be listed and tracked through the NPRI.
   ii) Furthermore, the application of the NPRI program is highly relevant to tracking substances in the government's proposed approach to address 1,200 low concern substances.
   iii) A similar approach should be taken for the medium priority substances for which no plan for action by the government has been released.

3) Adjustments to the NPRI beyond adding substances are needed to incorporate the categorized substances. A systematic mechanism needs to be developed to carry out this task and would require substantive discussions within the NPRI Working Group.

[7] Canadian Environmental Law Association, World Wildlife Fund Canada, York Region Environmental Alliance. April 5, 2007. Application of rapid screening tools for categorized substances of low ecological concern
Submitted to Environment Canada. Prepared for Canadian Environmental Network Toxics Caucus (9 pp.).

4) The NPRI Working Group should be given the responsibility and adequate resources to focus its work on integrating the substances identified through the categorization process.

5) A review of thresholds for reporting on these substances in addition to substances already being reported to the NPRI is a critical component of this work[8].

6) Other aspects of the NPRI that require improvements include:
   i) an enhancement of mandatory reporting in NPRI on pollution prevention activities;
   ii) removal of exemptions from reporting; and
   iii) add direct links to health and environmental issues for each substance being reported.

RCEN members will be pleased to work with Environment Canada to develop changes to the NPRI program so it can fulfill its potential to assist in the work under the government's "Challenge" program.

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[8] Note: An Alternate Threshold (ATH) sub-group of the NPRI Working Group currently exists, but its mandate needs to be re-examined to incorporate this aspect.

APPENDIX
Challenge Substances
in comparison to NPRI Listing

NOTE: Discrete substances listed on the NPRI are highlighted in yellow and indicated with a"y".
Substances that are included within a group listed on the NPRI are indicated with a "*".

	Chemical Substances in Batch One		
CAS#	**Chemical Name**	**Listed on NPRI**	**NPRI Substance Name**
75569	Oxirane, methyl-	y	Propylene oxide
78637	Peroxide, (1,1,4,4-tetramethyl-1,4-butanediyl)bis[(1,1-dimethylethyl)		
91087	Benzene, 1,3-diisocyanato-2-methyl-	y	Toluene-2,6-diisocyanate
91203	Naphthalene	y	Naphthalene
106887	Oxirane, ethyl-	y	1,2-Butylene oxide
120809	1,2-Benzenediol	y	Catechol
123319	1,4-Benzenediol	y	Hydroquinone (and its salts)
584849	Benzene, 2,4-diisocyanato-1-methyl-	y	Toluene-2,4-diisocyanate
1068275	Peroxide, (1,1,4,4-tetramethyl-2-butyne-1,4-diyl)bis[(1,1-dimethylethyl)		
6731368	Peroxide, (3,3,5-trimethylcyclohexylidene)bis[(1,1-dimethylethyl)		
12236645	2-Naphthalenecarboxamide, N-[4-(acetylamino)phenyl]-4-[[5-(aminocarbonyl)-2-chlorophenyl]azo]-3-hydroxy-		
26471625	Benzene, 1,3-diisocyanatomethyl-	y	Toluenediisocyanate (mixed isomers)
43035183	Benzenesulfonic acid, 4-[[3-[[2-hydroxy-3-[[(4-methoxyphenyl)amino]carbonyl]-1-naphthalenyl]azo]-4-methylbenzoyl]amino]-, calcium salt (2:1)		
54079537	Propanedinitrile, [[4-[[2-(4-cyclohexylphenoxy)ethyl]ethylamino]-2-methylphenyl]methylene]-		
59487239	2-Naphthalenecarboxamide, 4-[[5-[[[4-(aminocarbonyl)phenyl]amino]carbonyl]-2-methoxyphenyl]azo]-N-(5-chloro-2,4-dimethoxyphenyl)-3-hydroxy-		
	Total	**8**	

Challenge Substances
in comparison to NPRI Listing

	Chemical Substances in Batch Two		
CAS#	**Chemical Name**	**Listed on NPRI**	**NPRI Substance Name**
62566	Thiourea	y	Thiourea
78795	1,3-Butadiene, 2-methyl-	y	Isoprene
80057	Phenol, 4,4 -(1-methylethylidene)bis-	y	p,p'-Isopropylidenediphenol
106898	Oxirane, (chloromethyl)-	y	Epichlorohydrin
108054	Acetic acid ethenyl ester	y	Vinyl acetate
540976	Cyclohexasiloxane, dodecamethyl-		
541026	Cyclopentasiloxane, decamethyl-		
556672	Cyclotetrasiloxane, octamethyl-		
732263	Phenol, 2,4,6-tris(1,1-dimethylethyl)-		
1344372	C.I. Pigment Yellow 34		
2778429	Benzene, 1,3-bis(1-isocyanato-1-methylethyl)-		
4474242	Benzenesulfonic acid, 3,3'-[(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)diimino]bis[2,4,6-trimethyl-, disodium salt		
12656858	C.I. Pigment Red 104		
15086949	Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-		
70161192	Benzenesulfonic acid, [(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)bis(imino-4,1-phenyleneoxy)]bis-, disodium salt		
83006671	Benzenesulfonic acid, 2,2 -[(9,10-dihydro-5,8-dihydroxy-9,10-dioxo-1,4-anthracenediyl)diimino]bis[5-(1,1-dimethylethyl)-, disodium salt		
125351997	9,10-Anthracenedione, 1,4-bis[(4-methylphenyl)amino]-, sulfonated, potassium salts		
	Total No. of Substances listed on the NPRI (discrete substances)	**5**	

Challenge Substances
in comparison to NPRI Listing

Chemical Substances in Future Batches				
CAS#	**Chemical Name**	**Listed on NPRI**	**NPRI Name (discrete substance)**	**Substance within a group on NPRI**
53-19-0	Benzene, 1-chloro-2-[2,2-dichloro-1-(4-chlorophenyl)ethyl]-			
56-95-1	2,4,11,13-Tetraazatetradecanediimidamide, N,N' -bis(4-chlorophenyl)-3,12-diimino-, diacetate			
64-67-5	Sulfuric acid, diethyl ester	y	Diethyl sulphate	
74-87-3	Methane, chloro-	y	Chloromethane	
75-12-7	Formamide			
75-28-5	Propane, 2-methyl-	*		Butane "all isomers"
75-52-5	Methane, nitro-			
77-78-1	Sulfuric acid, dimethyl ester	y	Dimethyl sulphate	
78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-			
79-06-1	2-Propenamide	y	Acrylamide	
79-07-2	Acetamide, 2-chloro-			
79-46-9	Propane, 2-nitro-	y	2-Nitropropane	
81-68-5	Benzenesulfonamide, N-(4-amino-9,10-dihydro-3-methoxy-9,10-dioxo-1-anthracenyl)-4-methyl-			
88-12-0	2-Pyrrolidinone, 1-ethenyl-			
88-72-2	Benzene, 1-methyl-2-nitro-			
90-94-8	Methanone, bis[4-(dimethylamino)phenyl]-	y	Michler's ketone	
93-15-2	Benzene, 1,2-dimethoxy-4-(2-propenyl)-			
96-29-7	2-Butanone, oxime			
98-01-1	2-Furancarboxaldehyde			
100-44-7	Benzene, (chloromethyl)-	y	Benzyl chloride	
102-06-7	Guanidine, N,N -diphenyl-			
103-23-1	Hexanedioic acid, bis(2-ethylhexyl) ester	y	Bis(2-ethylhexyl) adipate	
106-97-8	Butane	*		Butane "all isomers"
107-05-1	1-Propene, 3-chloro-	y	Allyl chloride	

Challenge Substances
in comparison to NPRI Listing

CAS#	Chemical Name	Listed on NPRI	NPRI Name (discrete substance)	Substance within a group on NPRI
107-22-2	Ethanedial			Volatile organic compounds
107-51-7	Trisiloxane, octamethyl-			
110-49-6	Ethanol, 2-methoxy-, acetate	y	2-Methoxyethyl acetate	
110-54-3	Hexane	y	n-Hexane	
111-15-9	Ethanol, 2-ethoxy-, acetate	y	2-Ethoxyethyl acetate	
111-77-3	Ethanol, 2-(2-methoxyethoxy)-			Volatile organic compounds
115-39-9	Phenol, 4,4 -(3H-2,1-benzoxathiol-3-ylidene)bis[2,6-dibromo-, S,S-dioxide			
115-40-2	Phenol, 4,4 -(3H-2,1-benzoxathiol-3-ylidene)bis[2-bromo-6-methyl-, S,S-dioxide			
115-96-8	Ethanol, 2-chloro-, phosphate (3:1)	*		Phosphorus (total)
116-66-5	1H-Indene, 2,3-dihydro-1,1,3,3,5-pentamethyl-4,6-dinitro-			
117-82-8	1,2-Benzenedicarboxylic acid, bis(2-methoxyethyl) ester			
123-91-1	1,4-Dioxane	y	1,4-Dioxane	
125-31-5	Phenol, 4,4 -(3H-2,1-benzoxathiol-3-ylidene)bis[2,5-dimethyl-, S,S-dioxide			
126-73-8	Phosphoric acid tributyl ester	*		Phosphorus (total)
127-19-5	Acetamide, N,N-dimethyl-			
139-13-9	Glycine, N,N-bis(carboxymethyl)-	y	Nitrilotriacetic acid	
140-88-5	2-Propenoic acid, ethyl ester	y	Ethyl acrylate	
149-57-5	Hexanoic acid, 2-ethyl-			
302-01-2	Hydrazine	y	Hydrazine	
330-54-1	Urea, N'-(3,4-dichlorophenyl)-N,N-dimethyl-			
475-71-8	Benzo[h]benz[5,6]acridino[2,1,9,8-klmna]acridine-8,16-dione			
509-34-2	Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 3',6'-bis(diethylamino)-			
515-03-7	1-Naphthalenepropanol, à-ethenyldecahydro-2-hydroxy-à,2,5,5,8a-pentamethyl-, [1R-[1à(R*),2 ,4a ,8aà]]-			
603-33-8	Bismuthine, triphenyl-			
626-39-1	Benzene, 1,3,5-tribromo-			

Challenge Substances
in comparison to NPRI Listing

CAS#	Chemical Name	Listed on NPRI	NPRI Name (discrete substance)	Substance within a group on NPRI
944-61-6	Benzene, 1,2,3,4-tetrachloro-5,6-dimethoxy-			
1154-59-2	Benzamide, 3,5-dichloro-N-(3,4-dichlorophenyl)-2-hydroxy-			
1176-74-5	Benzoic acid, 2-[(3,5-dibromo-4-hydroxyphenyl)(3,5-dibromo-4-oxo-2,5-cyclohexadien-1-ylidene)methyl]-, ethyl ester			
1229-55-6	2-Naphthalenol, 1-[(2-methoxyphenyl)azo]-			
1309-64-4	Antimony oxide	*		Antimony "and its compounds"
1314-62-1	Vanadium oxide	*		Vanadium (except in an alloy) "and its compounds"
1325-86-6	1-Naphthalenemethanol, à,à-bis[4-(diethylamino)phenyl]-4-(ethylamino)-	*		
1326-05-2	Spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one, 2',4',5',7'-tetrabromo-3',6'-dihydroxy-, lead salt	*		Lead and its compounds, except tetraethyl lead (CAS No. 78-00-2)
1333-86-4	Carbon black			
1589-47-5	1-Propanol, 2-methoxy-			Volatile organic compounds
1594-08-7	9,10-Anthracenedione, 1-hydroxy-4-[[4-[(methylsulfonyl)oxy]phenyl]amino]-			
1937-37-7	2,7-Naphthalenedisulfonic acid, 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)-, disodium salt			
2134-15-8	Benzoic acid, 2,3,4,5-tetrachloro-6-(2,4,5,7-tetrabromo-6-hydroxy-3-oxo-3H-xanthen-9-yl)-			
2215-35-2	Zinc, bis[O,O-bis(1,3-dimethylbutyl) phosphorodithioato-S,S']-, (T-4)-	*		Phosphorus (total)
2379-74-0	Benzo[b]thiophen-3(2H)-one, 6-chloro-2-(6-chloro-4-methyl-3-oxobenzo[b]thien-2(3H)-ylidene)-4-methyl-			
2425-85-6	2-Naphthalenol, 1-[(4-methyl-2-nitrophenyl)azo]-			
2426-08-6	Oxirane, (butoxymethyl)-			
2814-77-9	2-Naphthalenol, 1-[(2-chloro-4-nitrophenyl)azo]-			
3118-97-6	2-Naphthalenol, 1-[(2,4-dimethylphenyl)azo]-	y	C.I. Solvent Orange 7	
3468-63-1	2-Naphthalenol, 1-[(2,4-dinitrophenyl)azo]-			

Challenge Substances
in comparison to NPRI Listing

CAS#	Chemical Name	Listed on NPRI	NPRI Name (discrete substance)	Substance within a group on NPRI
3555-47-3	Trisiloxane, 1,1,1,5,5,5-hexamethyl-3,3-bis[(trimethylsilyl)oxy]-			
4395-65-7	9,10-Anthracenedione, 1-amino-4-(phenylamino)-			
5261-31-4	Propanenitrile, 3-[[2-(acetyloxy)ethyl][4-[(2,6-dichloro-4-nitrophenyl)azo]phenyl]amino]-			
6232-56-0	Ethanol, 2-[[4-[(2,6-dichloro-4-nitrophenyl)azo]phenyl]methylamino]-			
6250-23-3	Phenol, 4-[[4-(phenylazo)phenyl]azo]-			
6253-10-7	Phenol, 4-[[4-(phenylazo)-1-naphthalenyl]azo]-			
6300-37-4	Phenol, 2-methyl-4-[[4-(phenylazo)phenyl]azo]-			
6358-57-2	2,7-Naphthalenedisulfonic acid, 3-[[2,2'-dimethyl-4'-[[4-[[(4-methylphenyl)sulfonyl]oxy]phenyl]azo][1,1'-biphenyl]-4-yl]azo]-4-hydroxy-, disodium salt			
6407-74-5	3H-Pyrazol-3-one, 4-[(2-chlorophenyl)azo]-2,4-dihydro-5-methyl-2-phenyl-			
6407-78-9	3H-Pyrazol-3-one, 4-[(2,4-dimethylphenyl)azo]-2,4-dihydro-5-methyl-2-phenyl-			
6410-09-9	2-Naphthalenol, 1-[(2-nitrophenyl)azo]-			
6410-13-5	2-Naphthalenol, 1-[(4-chloro-2-nitrophenyl)azo]-			
6410-41-9	2-Naphthalenecarboxamide, N-(5-chloro-2,4-dimethoxyphenyl)-4-[[5-[(diethylamino)sulfonyl]-2-methoxyphenyl]azo]-3-hydroxy-			
6471-01-8	2-Anthracenesulfonic acid, 4,4'-[(1-methylethylidene)bis(4,1-phenyleneimino)]bis[1-amino-9,10-dihydro-9,10-dioxo-, disodium salt			
6535-42-8	1-Naphthalenol, 4-[(4-ethoxyphenyl)azo]-			
6786-83-0	1-Naphthalenemethanol, à,à-bis[4-(dimethylamino)phenyl]-4-(phenylamino)-			
7147-42-4	Butanamide, 2,2'-[(3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diyl)bis(azo)]bis[N-(2-methylphenyl)-3-oxo-			
7328-97-4	Oxirane, 2,2 ,2 ,2 -[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-			
7440-48-4	Cobalt	*		Cobalt "and its compounds"
7646-79-9	Cobalt chloride	*		Cobalt "and its compounds"
7758-01-2	Bromic acid, potassium salt	y	Pottasium Bromate	
10124-43-3	Sulfuric acid, cobalt(2+) salt (1:1)			Cobalt "and its compounds"

Challenge Substances
in comparison to NPRI Listing

CAS#	Chemical Name	Listed on NPRI	NPRI Name (discrete substance)	Substance within a group on NPRI
10448-09-6	Cyclotetrasiloxane, heptamethylphenyl-			
12239-34-8	Acetamide, N-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-bromo-4,6-dinitrophenyl)azo]-4-ethoxyphenyl]-			
14295-43-3	Benzo[b]thiophen-3(2H)-one, 4,7-dichloro-2-(4,7-dichloro-3-oxobenzo[b]thien-2(3H)-ylidene)-			
14464-46-1	Cristobalite			
14808-60-7	Quartz			
16421-40-2	Acetamide, N-[5-[[2-(acetyloxy)ethyl](phenylmethyl)amino]-2-[(2-chloro-4,6-dinitrophenyl)azo]-4-methoxyphenyl]-			
16421-41-3	Acetamide, N-[5-[[2-(acetyloxy)ethyl](phenylmethyl)amino]-2-[(2,4-dinitrophenyl)azo]-4-methoxyphenyl]-			
16586-42-8	Propanenitrile, 3-[ethyl[3-methyl-4-[(6-nitro-2-benzothiazolyl)azo]phenyl]amino]-			
17321-77-6	5H-Dibenz[b,f]azepine-5-propanamine, 3-chloro-10,11-dihydro-N,N-dimethyl-, monohydrochloride			
17464-91-4	Ethanol, 2,2'-[[4-[(2-bromo-6-chloro-4-nitrophenyl)azo]-3-chlorophenyl]imino]bis-			
17540-75-9	Phenol, 2,6-bis(1,1-dimethylethyl)-4-(1-methylpropyl)-			
19800-42-1	Phenol, 4-[[2-methoxy-4-[(4-nitrophenyl)azo]phenyl]azo]-			
20241-76-3	9,10-Anthracenedione, 1,8-dihydroxy-4-nitro-5-(phenylamino)-			
21811-64-3	Phenol, 4,4'-[1,4-phenylenebis(azo)]bis-			
23355-64-8	Ethanol, 2,2'-[[3-chloro-4-[(2,6-dichloro-4-nitrophenyl)azo]phenyl]imino]bis-			
25013-16-5	Phenol, (1,1-dimethylethyl)-4-methoxy-			
25155-25-3	Peroxide, [1,3(or 1,4)-phenylenebis(1-methylethylidene)]bis[(1,1-dimethylethyl)			
25176-89-0	Propanenitrile, 3-[[4-[(5,6-dichloro-2-benzothiazolyl)azo]phenyl]ethylamino]-			
26850-12-4	Propanamide, N-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(2-chloro-4-nitrophenyl)azo]phenyl]-			
29398-96-7	[1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(2,4-dinitrophenyl)-3,3'-dimethoxy-			
29765-00-2	Benzamide, N-[5-[bis[2-(acetyloxy)ethyl]amino]-2-[(4-nitrophenyl)azo]phenyl]-			
38465-55-3	Nickel, bis[1-[4-(dimethylamino)phenyl]-2-phenyl-1,2-ethenedithiolato(2-)-S,S']-	*		Nickel "and its compounds"
40615-36-9	Benzene, 1,1'-(chlorophenylmethylene)bis[4-methoxy-			

Challenge Substances
in comparison to NPRI Listing

CAS#	Chemical Name	Listed on NPRI	NPRI Name (discrete substance)	Substance within a group on NPRI
41556-26-7	Decanedioic acid, bis(1,2,2,6,6-pentamethyl-4-piperidinyl) ester			
42739-61-7	Nickel, bis[2,3-bis(hydroxyimino)-N-(2-methoxyphenyl)butanamidato]-	*		Nickel "and its compounds"
52697-38-8	Acetamide, N-[2-[(2-bromo-4,6-dinitrophenyl)azo]-5-(diethylamino)phenyl]-			
55281-26-0	Propanenitrile, 3-[[4-[(2,6-dibromo-4-nitrophenyl)azo]phenyl]ethylamino]-			
55619-18-6	Ethanol, 2,2'-[[4-[(2,6-dibromo-4-nitrophenyl)azo]phenyl]imino]bis-, diacetate (ester)			
58161-93-6	Benzoic acid, 4-[1-[[(2,4-dichlorophenyl)amino]carbonyl]-3,3-dimethyl-2-oxobutoxy]-			
59709-38-5	-Alanine, N-[4-[(2-bromo-6-chloro-4-nitrophenyl)azo]phenyl]-N-(3-methoxy-3-oxopropyl)-, methyl ester			
60352-98-9	1-Propanaminium, 3-[[4-[(2,4-dimethylphenyl)amino]-9,10-dihydro-9,10-dioxo-1-anthracenyl]amino]-N,N,N-trimethyl-, methylsulfate			
62625-32-5	Phenol, 4,4 -(3H-1,2-benzoxathiol-3-ylidene)bis[2,6-dibromo-3-methyl-, S,S-dioxide, monosodium salt			
64111-81-5	Phenol, 2-phenoxy-, trichloro deriv.			
64325-78-6	Adenosine, N-benzoyl-5 -o-[bis(4-methoxyphenyl)phenylmethyl]-2 -deoxy-			
64338-16-5	7-Oxa-3,20-diazadispiro[5.1.11.2]heneicosan-21-one, 2,2,4,4-tetramethyl-			
64365-17-9	Resin acids and Rosin acids, hydrogenated, esters with pentaerythritol			
65140-91-2	Phosphonic acid, [[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]methyl]-, monoethyl ester, calcium salt (2:1)	*		Phosphorus (total)
65997-06-0	Rosin, hydrogenated			
65997-13-9	Resin acids and Rosin acids, hydrogenated, esters with glycerol			
68308-48-5	Amines, tallow alkyl, ethoxylated, phosphates	*		Phosphorus (total)
68391-11-7	Pyridine, alkyl derivs.			
68412-48-6	2-Propanone, reaction products with diphenylamine			
68443-10-7	Amines, C18-22-tert-alkyl, ethoxylated			
68478-45-5	1,4-Benzenediamine, N,N'-mixed tolyl and xylyl derivs.			
68515-42-4	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters			
68551-44-0	Fatty acids, C6-19-branched, zinc salts	*		Zinc "and its compounds"
68583-58-4	Ethanamine, N-ethyl-N-hydroxy-, reaction products with hexamethylcyclotrisiloxane, silica and 1,1,1-trimethyl-N-(trimethylsilyl)silanamine			
CAS#	**Chemical Name**	**Listed on NPRI**	**NPRI Name (discrete substance)**	**Substance within a group on NPRI**

Challenge Substances
in comparison to NPRI Listing

68648-53-3	Resin acids and Rosin acids, hydrogenated, esters with triethylene glycol			
68921-45-9	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene			
68937-51-9	Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, reaction products with ammonia, octamethylcyclotetrasiloxane and silica			
68952-02-3	Siloxanes and Silicones, Me 3,3,3-trifluoropropyl, Me vinyl,hydroxy-terminated			
68953-84-4	1,4-Benzenediamine, N,N'-mixed Ph and tolyl derivs.			
69430-47-3	Siloxanes and Silicones, di-Me, reaction products with Me hydrogen siloxanes and 1,1,3,3-tetramethyldisiloxane			
70331-94-1	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, (1,2-dioxo-1,2-ethanediyl)bis(imino-2,1-ethanediyl) ester			
70776-86-2	2-Butanone, 4-[[[1,2,3,4,4a,9,10,10a-octahydro-1,4a-dimethyl-7-(1-methylethyl)-1-phenanthrenyl]methyl](3-oxo-3-phenylpropyl)amino]-, [1R-(1à,4a ,10aà)]-			
70900-21-9	Siloxanes and Silicones, di-Me, hydrogen-terminated			
72102-55-7	Methylium, [4-(dimethylamino)phenyl]bis[4-(ethylamino)-3-methylphenyl]-, acetate			
72243-90-4	Benzenesulfonic acid, 3-[[4-amino-9,10-dihydro-9,10-dioxo-3-[sulfo-4-(1,1,3,3-tetramethylbutyl)phenoxy]-1-anthracenyl]amino]-2,4,6-trimethyl-, disodium salt			
72927-94-7	Benzenamine, 4-[(2,6-dichloro-4-nitrophenyl)azo]-N-(4-nitrophenyl)-			
72968-82-2	Methanesulfonamide, N-[2-[(2,6-dicyano-4-methylphenyl)azo]-5-(dipropylamino)phenyl]-			
74336-60-0	9,10-Anthracenedione, 1-[(5,7-dichloro-1,9-dihydro-2-methyl-9-oxopyrazolo[5,1-b]quinazolin-3-yl)azo]-			
75768-65-9	Phosphonium, triphenyl(phenylmethyl)-, salt with 4,4 -[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	*		Phosphorus (total)
79357-73-6	Amines, C18-22-tert-alkyl, (chloromethyl)phosphonates (2:1)	*		Phosphorus (total)
85702-90-5	2,9,11,13-Tetraazanonadecanethioic acid, 19-isocyanato-11-(6-isocyanatohexyl)-10,12-dioxo-, S-[3-(trimethoxysilyl)propyl] ester			
93805-00-6	Phenol, 4-[[2-methoxy-4-[(2-methoxyphenyl)azo]-5-methylphenyl]azo]-			
101200-53-7	Pyridine, 2-[3-(3-chlorophenyl)propyl]-			
106276-78-2	Benzoic acid, 2,3,4,5-tetrachloro-6-cyano-, methyl ester, reaction products with 4-[(4-aminophenyl)azo]-3-methylbenzenamine and sodium methoxide			
124751-15-1	Resin acids and Rosin acids, fumarated, barium salts			
125328-28-1	Phenol, 4,4 -(1-methylethylidene)bis-, reaction products with hexakis(methoxymethyl)melamine			
	Total: Discrete substances (y) and substances within a group (*)		**18**	**19**