TSCA Work Plan Chemicals: Methods Document

Environmental Protection Agency

Office of Pollution Prevention and Toxics

February 2012

Background

In the Agency's August 2011 *Discussion Guide: Background and Discussion Questions for Identifying Priority Chemicals for Review and Assessment*, EPA described the two-step process the Agency intended to use to identify potential candidate chemicals for near-term review and assessment under the Toxic Substances Control Act (TSCA). The Agency intends to use these TSCA Work Plan Chemicals to help focus and direct the activities of the Existing Chemicals Program in the Office of Pollution Prevention and Toxics (OPPT). EPA invited public comment through an online discussion forum conducted from August 18 through September 21, 2011, as well as through a webinar and stakeholder meeting held on September 7, 2011. The meeting summaries and public comments are available for review in the docket for this activity, EPA-HQ-OPPT-2011-0516, which can be accessed online at http://www.regulations.gov.

As described in the *Discussion Guide*, EPA notes that identification of a chemical as a TSCA Work Plan Chemical does not itself constitute a finding by the Agency that the chemical presents a risk to human health or the environment. Such a determination would be the result of a risk assessment. Rather, identification of a chemical as a TSCA Work Plan Chemical indicates only that the Agency intends to consider it for further review. The Agency believes that identifying these chemicals early in the review process would afford all interested parties the opportunity to bring additional relevant information on those chemicals to the Agency's attention in order to further inform the review. In order to take risk management actions on a chemical substance under various sections of TSCA, the Agency would have to make the appropriate findings required by the specific provisions of the statute.

Identification of some chemicals as TSCA Work Plan Chemicals (Work Plan) does not mean that EPA would not consider other chemicals for risk assessment and potential risk management action under TSCA and other statutes. EPA will consider other chemicals if warranted by available information. In addition, EPA may subsequently identify other candidates for review in addition to this initial group, and may adapt the factors and data sources used in this process based on the experience acquired during this initial phase. Further, while the chemicals identified through this process as TSCA Work Plan Chemicals will likely be well-characterized for hazard and have information indicating exposure potential, some will have more limited data and EPA will continue to use its TSCA information collection, testing, and subpoena authorities, including sections 4, 8, and 11(c) of TSCA, to develop needed information on additional chemicals that currently have less robust hazard or exposure databases.

Two-Step Process

As described in the *Discussion Guide*, EPA's two-step prioritization process was intended to select an initial group of candidate chemicals for review by using a specific set of data sources to identify chemicals meeting one or more of the following factors:

- Chemicals identified as potentially of concern for children's health (e.g., chemicals with reproductive or developmental effects).
- Chemicals identified as persistent, bioaccumulative, and toxic (PBT).
- Chemicals identified as probable or known carcinogens.
- Chemicals used in children's products.

- Chemicals used in consumer products.
- Chemicals detected in biomonitoring programs.

EPA indicated the candidate chemicals from Step 1 would then be screened in Step 2 using information from additional exposure and hazard data sources to further analyze the chemicals and select specific chemicals for further assessment, including possible risk assessment and risk management action.

Based on comments received through the discussion forum, the webinar, and the stakeholder meeting, EPA made some adjustments both to the Step 1 factors and to the data sources utilized in both Step 1 and Step 2. With regard to the factors considered in Step 1, EPA added neurotoxicity to the initial Step 1 selection criteria because of comments noting the importance of neurotoxic effects to children's health. The Agency further added respiratory sensitization to the human health factors it would consider in Step 2, based on public comments suggesting this endpoint as identifying possible contributors to childhood asthma. Several commenters also encouraged EPA to use environmental toxicity as a prioritization factor to populate the Step 1 group of candidate chemicals. While environmental toxicity is not being used as a Step 1 prioritization factor on its own, EPA notes that many of the PBT chemicals are classed as toxic on the basis of environmental toxicity data. The Agency has also specifically factored environmental toxicity into the Step 2 analysis.

Following public comment, EPA also adjusted the proposed data sources identified in the *Discussion Guide*, particularly for Step 2, to encompass additional sources suggested by commenters, including the European Chemical Substance Information System (ESIS) and the Organization for Economic Cooperation (OECD) eChem Portal (which includes U.S. databases). EPA also eliminated certain data sources, including NHATS, NHEXAS, and TEAM, on the basis of their age. Given the difficulty of comprehensively identifying chemicals in consumer products, particularly because the 2006 Inventory Update Reporting (IUR) system made no distinction between commercial and consumer products, EPA narrowed the focus of the Step 1 prioritization factor to chemicals identified as being in children's products either through IUR reporting or through the process used by Washington State to generate its list of children's product chemicals. EPA notes, however, that chemicals identified through the application of the prioritization factors in Step 1 were further scrutinized in Step 2 against additional databases including the Hazardous Substance Data Bank (HSDB) and the Household Product Database, among others, to identify potential consumer uses.

Derivation of the Step 1 Potential Candidate Chemicals

To generate the Step 1 chemicals meeting the Agency's prioritization factor criteria as potential candidates for review and assessment, the following sources were used:

- ***Carcinogenicity:***
  - IRIS: 1986 Class A, B1; 1996 Known or Probable; 1999 or 2005 Carcinogenic
  - IARC Carcinogens, Group 1, 2A
  - NTP Known Carcinogens
- ***PBT:***
  - TRI PBT Rule
  - Great Lakes Binational PBT
  - Canadian P, B, and T (all three criteria met)
  - LRTAP POPS

    - Stockholm POPs
  - ***Children's Health:***
    - IRIS: Repro/Dev (RfD or RfC for repro or dev)
    - NTP CERHR: Infants Any Effect or Pregnant Women Any Effect
    - Cal Prop 65 Reproductive
  - ***Neurotoxicity:*** IRIS
  - ***Children's Product Use:***
    - Reported in products intended for use by children in 2006 IUR
    - Washington State Children's List
  - ***Biomonitoring*** (both human and environmental indicative of potential human exposure):
    - NHANES
    - Drinking Water Contaminants
    - Fish Tissue Studies

These sources produced a combined total of 1,235 chemicals, each of which matched at least one criterion. The resulting chemicals were then screened both for quality control to eliminate duplicate listings (an artifact of differences in the way the various data sources defined and reported chemicals), and to exclude chemicals that would not be appropriate for designation as candidates for near-term review and action under TSCA, either because they did not meet the intent of the prioritization criteria, they were not subject to action under TSCA, or they were already the subject of TSCA action.

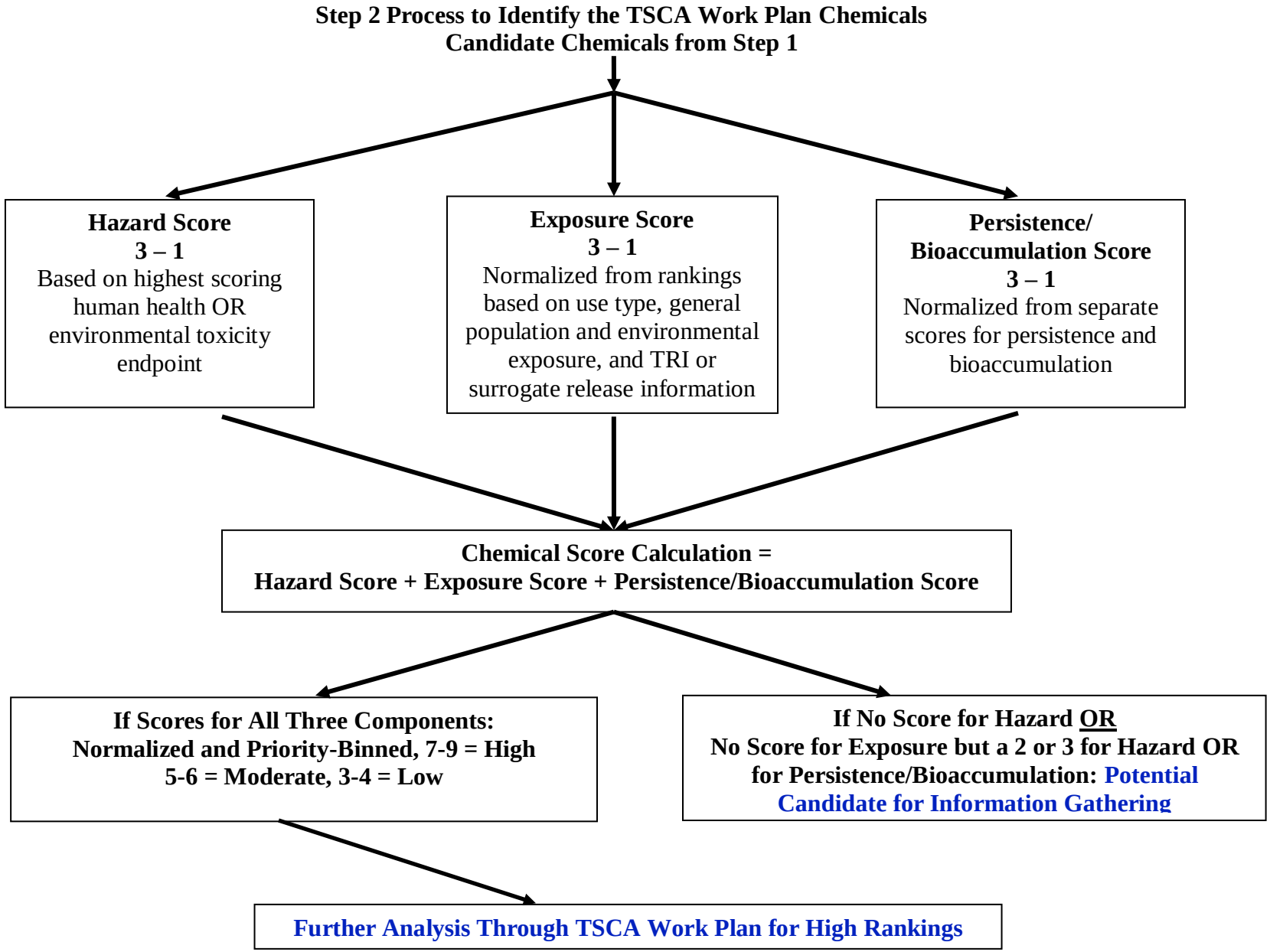
Chemicals were excluded from identification as potential candidates for any of the following reasons:

- **Pesticides:** Pesticides are excluded from regulation under TSCA because they are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).
- **Drugs, hormones, and pharmacological chemicals:** Drugs are excluded from regulation under TSCA because they are regulated under the Federal Food, Drug, and Cosmetic Act (FFDCA). Hormones and pharmacological chemicals can be found in the environment when they are excreted or disposed of, but may not be amenable to management under TSCA.
- **Certain radioactive materials:** Radioactive chemicals are generally excluded from regulation under TSCA as source materials, special nuclear materials, or byproduct materials as defined in the Atomic Energy Act and subsequent regulations.
- **Complex process streams, byproducts not commercially produced:** Chemicals that are the reaction products of vague constituents, byproducts of complex streams, or complex mixtures are generally not readily definable in terms of their chemical identity and may vary considerably in both their composition and hazard from batch to batch, making them difficult to score consistently in this type of screening exercise. They were accordingly excluded.
- **Polymers:** Polymers typically have physical and chemical characteristics (high molecular weight, low absorbance, and low reactivity) that do not generally present significant health hazards. Some polymers that meet certain established criteria (49 FR 46066, November 21, 1984) have been specifically exempted from TSCA review under the new chemicals program because they "do not present an unreasonable risk of injury to human health or the environment." Polymers were therefore excluded from the Work Plan.
- **Gases, common naturally occurring chemicals, combustion products:** Chemicals that exist in gaseous form at normal temperatures, predominantly occur naturally in the

environment, or are produced predominantly by combustion are generally not amenable to control or management under TSCA.

- **Common oils or fats, simple plant extracts:** Chemicals in these categories are generally not anticipated to be sufficiently toxic to give rise to concerns that would make them priorities.
- **Explosive, pyrophoric, or extremely reactive or corrosive chemicals:** Chemicals that explode, burn on contact with air or water, react quickly with other chemicals, or are extremely corrosive are unlikely to present opportunities for human or environmental exposures because their high physical hazard properties make them subject to stringent handling requirements intended to guard against accidental exposures or releases.
- **Metals principally identified as toxic to the environment:** Many metals – copper, for example – are generally toxic to the environment, but do not present health issues to humans under typical conditions of use. Those metals and related compounds were excluded from the Work Plan, while metals with specific human health concerns were retained.
- **Chemicals already the subject of Action Plans or significant regulation under TSCA:** Polychlorinated biphenyls (PCBs) were excluded from the Work Plan because they are already comprehensively regulated under TSCA, which bans their manufacture, processing, use and distribution in commerce. Chemicals covered by Action Plans or other currently ongoing regulatory activities under TSCA were also excluded because they had been recently reviewed and are already being addressed.

After these chemicals were excluded and the remaining metals and their related compounds were grouped together rather than being identified separately, 345 chemicals remained as potential candidates and entered into Step 2, which is described in the next section of this paper.


Step 2 Process to Identify the TSCA Work Plan Chemicals
Candidate Chemicals from Step 1
Hazard Score
3 – 1
Based on highest scoring human health OR environmental toxicity endpoint
Exposure Score
3 – 1
Normalized from rankings based on use type, general population and environmental exposure, and TRI or surrogate release information
Persistence/ Bioaccumulation Score
3 – 1
Normalized from separate scores for persistence and bioaccumulation
Chemical Score Calculation =
Hazard Score + Exposure Score + Persistence/Bioaccumulation Score
If Scores for All Three Components:
Normalized and Priority-Binned, 7-9 = High
5-6 = Moderate, 3-4 = Low
If No Score for Hazard OR
No Score for Exposure but a 2 or 3 for Hazard OR
for Persistence/Bioaccumulation: Potential Candidate for Information Gathering
Further Analysis Through TSCA Work Plan for High Rankings

Explanation of Step 2 Process

The chemicals identified as potential candidates for review and assessment under TSCA based on the Step 1 prioritization factors were screened in Step 2. Chemicals were evaluated and received a score through the application of a numerical algorithm. This score was based on three characteristics: hazard, exposure, and potential for persistence and/or bioaccumulation. Using this system, chemicals were sorted into one of four bins. Chemicals able to be scored on all three characteristics were scored as High, Moderate, or Low based on their available information. Chemicals with High or Moderate hazard or persistence/bioaccumulation scores that could not be scored for exposure because of an absence of data, together with chemicals that could not be scored for hazard, were identified separately as potential candidates for information gathering.

This chemical candidate screening process is an interim evaluation only. It does not constitute a final Agency determination as to risk or as to whether sufficient data are available to characterize risk from specific chemicals on the TSCA Work Plan. Inclusion of a chemical on the Work Plan does not constitute any finding of risk under TSCA. This screening process is intended only to support initial decisions to determine the relative priority for further assessments and to identify potential data needs for individual chemicals or chemical groups.

Hazard Score:

The Hazard Score encompasses both human health and environmental toxicity concerns. The specific hazard classification criteria are based on the *Alternatives Assessment Criteria for Hazard Evaluation* developed by EPA's Design for the Environment Program (DfE). The DfE criteria for classifying the toxicity of specific chemicals were developed from authoritative sources including the United Nation's Globally Harmonized System (GHS) for Chemical Classification and Labeling and other EPA programs. The data determining the score for each chemical were obtained through the data sources identified in Appendix A. The hazard data reviews on each chemical were not exhaustive and do not rise to the level of assessments. Chemicals were scored on the basis of readily available data, and no judgment was made concerning gaps in or completeness of the available data set for a given chemical.

The Hazard Score was determined based on 3 hazard levels, and each hazard level had a corresponding hazard rank (High-3, Moderate-2, and Low-1). The concentration ranges or characteristics that correspond with each hazard level are listed in Table 1 below.

Candidate chemicals from Step 1 received a hazard rank score for each of the toxicity endpoints that were applicable based on the data readily available for each chemical. The highest hazard rank score a chemical received for *any* single human health or environmental toxicity endpoint became its Hazard Score. If the review on a chemical produced a High hazard score for any endpoint other than acute mammalian toxicity or acute or chronic aquatic toxicity, data on other endpoints were not sought because they would not impact the existing High score.

Table 1. Criteria for Determining Hazard Score

		High	Moderate	Low	Hazard Score
Ranking		**3**	**2**	**1**	
Chemical X					
	Acute Mammalian Toxicity Oral LD50 (mg/kg) Dermal LD50 (mg/kg) Inhalation LC50 (gas/vapor) (mg/L) Inhalation LC50 (mist/dust) (mg/L/day)	 ≤ 50 - 300 ≤ 200 - 1000 ≤ 2 - 10 ≤ 0.5 – 1.0	 >300 - 2000 >1000 - 2000 >10 - 20 >1.0 - 5	 >2000 >2000 >20 >5	**(Highest score from any toxicity category)**
	Carcinogenicity	GHS 1A, 1B, GHS2	Limited animal	Negative or SAR	
	Mutagenicity/Genotoxicity	GHS 1A, 1B, GHS 2	Positive *in vivo* or *in vitro*	Negative	
	Reproductive Toxicity Oral (mg/kg/day) Dermal (mg/kg/day) Inhalation (gas/vapor) (mg/L/day) Inhalation (mist/dust) (mg/L/day)	 <50 <100 <1 <0.1	 50-250 100-500 1-2.5 0.1-0.5	 >250 >500 >2.5 >0.5	
	Developmental Toxicity Oral (mg/kg/day) Dermal (mg/kg/day) Inhalation (gas/vapor) (mg/L/day) Inhalation (mist/dust) (mg/L/day)	 <50 <100 <1.0 <0.1	 50 – 250 100 – 500 1.0 – 2.5 0.1 – 0.5	 >250 >500 >2.5 >0.5	
	Neurotoxicity *Oral (mg/kg-bw/day)* 90-day (13 weeks) 40-50 days 28-days (4 weeks) *Dermal (mg/kg-bw/day)* 90-day (13 weeks) 40-50 days 28-days (4 weeks)	 < 10 < 20 < 30 < 20 < 40 < 60	 10 – 100 20 – 200 30 – 300 20 – 200 40 – 400 60 – 600	 > 100 > 200 > 300 > 200 > 400 > 600	

		High	Moderate	Low	Hazard Score
Ranking		**3**	**2**	**1**	
	Chronic Toxicity *Oral (mg/kg-bw/day)* 90- day (13 weeks) 40-50 days 28-days (4 weeks) *Dermal (mg/kg-bw/day)* 90- day (13 weeks) 40-50 days 28-days (4 weeks)	 < 10 < 20 < 30 < 20 < 40 < 60	 10 – 100 20 – 200 30 – 300 20 – 200 40 – 400 60 – 600	 > 100 > 200 > 300 > 200 > 400 > 600	
	Respiratory Sensitization	GHS 1A and 1B Occurrence of respiratory sensitization; Evidence supporting potential for respiratory sensitization		No evidence to support potential for respiratory sensitization	
	Acute Aquatic Toxicity (LC50 or EC50) (mg/L)	< 1.0 – 10	> 10 - 100	> 100	
	Chronic Aquatic Toxicity (NOEC or LOEC) (mg/L)	< 0.1 – 1	> 1 - 10	> 10	
					Hazard Score

Because the highest score from any individual endpoint was taken as the total Hazard Score, a chemical was ranked as either 3 (High), 2 (Moderate), or 1 (Low) for hazard.

For the toxicity endpoints Acute Mammalian Toxicity, Reproductive Toxicity, Developmental Toxicity, Neurotoxicity, and Chronic Toxicity a range of values for each Hazard Level was assigned. These values appear in the DfE *Alternatives Assessment Criteria*. In some cases DfE has 5 distinct hazard levels. For this analysis, the "Very High" and "High" levels from DfE were grouped together to represent High on this scale and DfE's "Low" and "Very Low" levels were combined to form the criteria for a Low rank.

The hazard levels for Carcinogenicity were based on whether a chemical is a known, presumed, or suspected carcinogen (High); limited evidence of carcinogenicity (Moderate); or non-carcinogenetic (Low). Note that the High score for carcinogenicity in Step 2 is broader than the criteria used in the Step 1 for carcinogenicity. The Step 1 factor specified that a chemical be classified as a known or probable carcinogen, equivalent to the GHS 1A or 1B classification, in order to be included in the screening program expressly on the basis of carcinogenicity. For the purpose of further evaluating the Agency's potential concern for chemical hazard in Step 2 of this screening process, however, EPA included presumed, suspected, or likely human carcinogenicity classifications – the equivalent of GHS 2 – as also meriting a High hazard score.

The hazard levels for Mutagenicity/Genotoxicity were based on evidence that heritable mutations are known to or may occur in human germ cells, or mutagenicity demonstrated *in vivo* and *in vitro* (High); evidence of mutagenicity supported by *in vivo* or *in vitro* somatic cells of humans and animals (Moderate); or no evidence of chromosomal aberrations and gene mutations in reported studies (Low).

Respiratory Sensitization was based on GHS classifications of respiratory sensitizers. Hazard levels were based on whether there is occurrence of respiratory sensitization in humans or supporting evidence based on other tests, including the presence of structural alerts (High); or no evidence to support the potential for respiratory sensitization (Low). This endpoint was added to the prioritization template proposed in the August 2011 *Discussion Guide* following stakeholder comment that respiratory sensitization is particularly of interest to children's health issues based on the increasing trends of childhood asthma and other illnesses.

Environmental toxicity information was limited primarily to aquatic toxicity studies. If information about environmental toxicity was available, it was analyzed in conjunction with human toxicity information.

Chemicals that were scored as High for hazard only on the basis of acute mammalian toxicity were further considered on the basis of their classification for other human health endpoints. Where data on other health endpoints were available, the overall hazard score for the chemical was adjusted accordingly to reflect the highest remaining health endpoint. This was done because chemicals with high acute mammalian toxicity are generally already regulated on the basis of that toxicity and are subject to handling and use controls intended to protect workers and others potentially coming into contact with the chemical from harmful acute exposures. Scoring those chemicals on the basis of their other toxic effects was intended to acknowledge that protection against effects from acute exposures would not necessarily protect against effects from other exposures. If acute mammalian toxicity was the only available data endpoint for a chemical, the acute score remained as the overall hazard score for the chemical.

Chemicals that scored as High for hazard only on the basis of acute or chronic aquatic toxicity but that did not present human health concerns were grouped separately as being of potential concern for the environment.

If no hazard data were available on a chemical to provide a hazard score, the chemical was placed in a parallel prioritization category. These chemicals were classified as "Potential Candidates for Information Gathering. (See page 16.)" Creating a separate category ensured that chemicals with unknown toxicity would not be removed from further investigation because there was a lack of data.

Exposure Score:

The Exposure Score was based on a combination of chemical use, general population and environmental exposure, and release information. The Use Type score included consideration of consumer product applications as well as industrial and commercial uses that could result in widespread exposures. The General Population and Environmental Exposure score encompassed measured data on the presence of a chemical in biota and environmental media. The Release score was based on EPA's Toxics Release Inventory (TRI) data for chemicals subject to TRI reporting. For

non-TRI chemicals, the Release score was calculated using a method involving Inventory Update Reporting data (IUR, now called Chemical Data Reporting, or CDR), including production volume, number of sites, and type of use. Data used in the other two components of exposure scoring were obtained through the sources identified in Appendix B. The detailed description of how information from those sources was used to generate an exposure score appears in Appendix C.

Table 2. Exposure Score

			Score
I. Use Type			
Ranking	Criteria		**Use Score**
3	Consumer product widely used, high likelihood of exposure		
2	Consumer product narrow use, lower likelihood of exposure		
1	Commercial use, indicating some likelihood of exposure		
0	No reported commercial use, indicating little to no likelihood of general exposure from use		
II. General Population and Environmental Exposure			
Ranking	Criteria		**+ General Population & Environmental Exposure**
3	Present in biota (human, fish, animal or plant biomonitoring), OR measured in drinking water, indoor air, house dust		
2	Not in biota, but reported present in 2 or more environmental media		
1	Reported present in 1 environmental medium		
III. Release Score: Use III. A or III. B, As Appropriate			
III. A.	**Release Score for TRI Chemicals***		**+ TRI Release Score**
Ranking	Criteria		
3	> 100,000 lbs/year		
2	5,000 – 100,000 lbs/year		
1	< 5,000 lbs/year		
OR			**OR**
III. B.	**Release Score for Non-TRI Chemicals**		**+ Non-TRI Release Score**

The III.B. Release Score for Non-TRI Chemicals was generated by normalizing the sum of the subset rankings for Production Volume, Number of Sites, Industrial Processing and Use, and Commercial/Consumer Use differentiating between uses with high, moderate, and low potential for widespread releases, as shown below and described in detail in Appendix C:				
	Subset 1: IUR Production Volume		**PV**	
	Ranking	Criteria		
	3	≥ 1,000,000 lbs/year		
	2	≥ 500,000 – 999,999 lbs/year		
	1	< 500,000 lbs/year		
	Subset 2: IUR Number of Manufacturing, Processing, and Use Sites		**+ Site #**	
	Ranking	Criteria		
	3	≥ 1, 000		
	2	100 – 999		
	1	< 100		
	Subset 3: IUR Industrial Processing and Use (IPU)		**+ Use1**	
	Ranking	Criteria		
	3	High potential for release		
	2	Moderate potential for release		
	1	Low potential for release		
	Subset 4: IUR Commercial Use (C)		+Use2	
	Ranking	Criteria		
	3	High potential for release		
	2	Moderate potential for releases		
	1	Low potential for release		
	Subtotal Surrogate Score		=	
Total				**Exposure Score****

* TRI data included in the exposure calculation were limited to water, air, and non-contained land releases.
** Total Exposure Score is the sum of the individual scores for I, II, and III.A or III.B.

The criteria for exposure potential in the Use Types category were based on a chemical's presence and characteristics of use in consumer, commercial, or industrial products as indicated in the data sources in Appendix B. Chemicals in consumer products judged widely used with a high potential for exposure received the highest rank. Chemicals that are present in consumer products but are more narrowly used and have lower likelihood of exposure were ranked as moderate. Chemicals that are not high or moderate but have commercial uses reported in IUR were ranked as low, acknowledging that such uses may present some potential for exposures not only to workers but also to the general population and the environment. Chemicals with no commercial use reported in IUR

received a rank of zero. Further information on this approach and examples of ranking by use type are provided in Appendix C.

The data supporting ranking in the General Population and Environmental Exposure category came from the databases and peer-reviewed studies included in the list presented in Appendix B. The highest rank was based on presence in biota, because chemicals measured in humans, fish, animals, or plants demonstrate clear evidence of exposure; and on measured presence in indoor air, house dust, or drinking water, because presence in those specific media provides a strong indication of exposure potential. Presence in two or more environmental media indicates a reasonable potential for environmental exposure, which was the criteria for a moderate exposure ranking. Measured presence in one environmental medium provides some indication of potential environmental exposure, and was given a low ranking.

The Release Score was determined in one of two ways. If the chemical was reported under TRI, the TRI data were used to infer potential for environmental and general population exposure. The breakdowns for the high, moderate and low ranks were based on a distribution of pounds released for the chemicals reported by industry in the database.

If no TRI data existed, a release score was calculated on the basis of IUR data using production volume, number of sites, and use codes classified according to how likely the uses were to result in releases. The description of how these non-TRI release scores were derived, along with examples of how IUR use codes were associated by EPA with high, moderate, or low potentials for release, appears in Appendix C. While a chemical's production volume, use type, and number of manufacturing, processing, and industrial use sites do not provide exposure data, they can be used as an indicator of potential releases and resulting potential exposures.

All Exposure category scores were added up and then normalized on an overall High-Moderate-Low scale. To prevent the prioritization process from being biased unduly either toward or against data-rich chemicals, the normalization process differed depending on how many of the three categories – Use Type, General Population & Environmental Exposure, and Releases – had sufficient data to provide a score for the category.

For chemicals with scores in all three categories, "9" was the highest possible score, and the normalization scoring structure was:

Total Exposure Score from Table 2	Overall Rank	Normalized Overall Exposure Score
8 - 9	High	3
5 - 7	Moderate	2
2 - 4	Low	1

For chemicals with scores in only two of the three categories, "6" was the highest possible score, and the normalization scoring structure was:

Total Exposure Score from Table 2	Overall Rank	Normalized Overall Exposure Score
5 - 6	High	3
3 - 4	Moderate	2
1-2	Low	1

In the absence of exposure data on chemicals sufficient to populate at least two of the exposure categories in Table 2 and produce a meaningful score, such chemicals receiving moderate or high hazard scores, or that also could not be scored for hazard because of an absence of hazard data, were placed in a parallel prioritization category. These chemicals were classified as "Potential Candidates for Information Gathering. (See page 16.)" EPA created this separate category to ensure that chemicals with unknown toxicity or with known potential human health or environmental toxicity implications would not be removed from further investigation simply because there was a lack of exposure information, an issue stakeholders identified during the webinar and discussion forum as being of concern.

Potential for Persistence/Bioaccumulation:

Chemicals received a separate score to rank their potential for persistence and/or bioaccumulation. Persistent and bioaccumulative chemicals present special issues because organisms can remain exposed to them for a very long time and organisms higher up the food chain may be exposed to larger quantities of the chemicals through their food supply. EPA considers it particularly important that these chemicals not be removed from consideration for further investigation simply because they may lack either hazard or exposure information, or both.

Persistence scoring consisted of the evaluation of the potential half-life in air, water, soil, and sediment while considering the expected partitioning characteristics of the chemicals and all potential removal pathways based on standard physical-chemical properties and environmental fate parameters. Data sources listed in Appendix B were searched to locate studies on biotic and abiotic transformation (e.g., biodegradation, hydrolysis, photolysis) in order to estimate half-lives for the chemicals in the environment.

Bioaccumulation scoring consisted of evaluation of bioaccumulation/bioconcentration (measured or estimated BAF/BCF) data. When BAF data were not available, bioconcentration data (measured or estimated) were used to evaluate the potential for a chemical to bioaccumulate in organisms in the environment.

In the absence of test data establishing the chemical's measured persistence or bioaccumulation potential, EPA used EPI Suite™ version 4.10 to derive a ranking for the chemical. Specifically, BIOWIN, HYDROWIN, AOPWIN, BCF/BAF and Level III fugacity models were used to assess biodegradation, hydrolysis, atmospheric oxidation, bioaccumulation/bioconcentration and environmental partitioning.

Table 5. Persistence/Bioaccumulation Potential

			Overall Persistence/ Bioaccumulation Score
I. Persistence			
Ranking	Criteria		Persistence
3	Half-life > 6 months		
2	Half-life ≥ 2 months		
1	Half-life < 2 months		
II. Bioaccumulative Potential			
Ranking	Criteria		+ Bioaccumulation
3	BCF or BAF > 5000		
2	BCF or BAF ≥ 1000		
1	< 1000		
Total			**Persistence/ Bioaccumulation Score**

These criteria for judging persistence and bioaccumulation are the ones used in EPA's New Chemicals program. The separate scores for persistence and bioaccumulation were added together to produce a total score, which was normalized as follows:

Persistence/Bioaccumulation Score	Ranking	Normalized P/B Score
5 - 6	High	3
3 - 4	Moderate	2
2	Low	1

Categorizing Candidates for Inclusion as TSCA Work Plan Chemicals

After the candidate chemicals in Step 1 received normalized scores for Hazard, Exposure, and Persistence/Bioaccumulation, those scores were totaled to roughly group the chemicals receiving scores in all three categories into High, Moderate, and Low groupings as follows:

Normalized Total Score	Ranking
7 - 9	High
4 - 6	Moderate
1 - 3	Low

Appendix D identifies the 83 candidate chemicals from Step 1 that received scores on all three ranking factors and ranked High on the basis of their total score, including human health hazard concerns, and provides a brief summary of the information that produced that ranking. This table also includes chemicals that may not have presented human health concerns, but met all the criteria for identification as persistent, bioaccumulative, and environmentally toxic chemicals. These are the

TSCA Work Plan Chemicals, from which the Agency intends to select chemicals for near-term review and assessment.

EPA notes that some chemicals identified as High through this scoring system may not necessarily be practical candidates for assessment under TSCA when other information is factored into the process. For example, the particular risks presented by certain chemicals may already be addressed by significant regulation under other statutes. One such example is quartz, which presents a hazard only in the context of silicosis from the inhalation of very fine crystalline dust particles, which could generally occur only during such occupational activities as sandblasting or stone cutting; these potential exposures are specifically controlled under regulations issued by the Occupational Safety and Health Administration (OSHA).

Potential Candidates for Information Gathering

Chemicals that could not be scored for hazard, or that were scored as moderate or high for either hazard or for persistence/bioaccumulation but could not be scored for exposure, have been grouped separately. These chemicals may be potential candidates for information-gathering activities focused on producing sufficient information to determine where they would rank in the prioritization process. EPA may consider a variety of such information-gathering activities, including both voluntary data submission and regulations issued under Sections 4 and 8 of TSCA.

Identifying Work Plan Chemicals for Risk Assessment in 2012 and Beyond

In identifying a smaller set of chemicals for work in any given year, EPA considers a number of factors, including:

- Whether the chemical was identified as a "High" ranking chemical.
- Whether the chemical reflects more than one of the factors identified in Step 1 (for example, chemicals that were identified as a potential concern for children's health and also were persistent, bioaccumulative, and toxic) and whether each of the factors was covered by the set of chemicals. These factors included health and environmental hazards, children's health, use in consumer products and dispersive uses, persistence and bioaccumulation, and detection in biomonitoring and environmental monitoring.
- Whether certain chemicals, or groups of chemicals, would benefit from some preliminary work to assure that risk assessments are targeted and scoped appropriately, and therefore would best be addressed in an out year.
- Whether certain chemicals, or groups of chemicals, have previously been assessed and addressed by the Agency, so that risk assessment in later years may be more appropriate than in the earlier years of the work plan.
- Agency work load considerations, including scope and timing of work needed on specific chemicals, and existing commitments for assessment.

For 2012, EPA identified an initial group of seven chemicals, which can be found on the first page of the table in Appendix D. EPA will identify a group of chemicals each year for risk assessment, completing a number of risk assessments that year and initiating new assessments from the remaining chemicals on the work plan in the coming years. This spring, the Agency plans to identify specific chemicals for which it plans to conduct risk assessment in 2013 and 2014.

APPENDIX A: Data Sources for Hazard Scoring

Data Sources for Hazard Scoring

Hazard Information (Data on all toxicological endpoints)	
Providers/ Data Source	**Description**
USEPA: IRIS	Integrated Risk Information System (IRIS): http://www.epa.gov/iris/index.html
USEPA: HPVIS	Hazard Characterizations prepared by EPA on chemicals in the High Production Volume Challenge Program (HPV): http://iaspub.epa.gov/oppthpv/hpv_hc_characterization.get_report?doctype=2 Risk-Based or Hazard-Based Prioritizations prepared by EPA under the Chemical Assessment and Management Program (ChAMP): http://iaspub.epa.gov/oppthpv/existchem_hpv_prioritizations.report
USEPA: ISIS	The Integrated Scientific Information System (ISIS) is a chemical relational database application originally developed by Molecular Design Limited (MDL) Information Systems and utilized by the EPA New Chemicals program; the EPA version of this database contains confidential information.
United Nations World Health Organization: IARC	International Agency for Research on Cancer (IARC): http://monographs.iarc.fr/ENG/Classification/index.php
National Toxicology Program	NTP Report on Carcinogens: http://ntp.niehs.nih.gov/?objectid=03C9AF75-E1BF-FF40-DBA9EC0928DF8B15 NTP/CERHR Monographs on Potential Reproductive and Developmental Effects: http://ntp.niehs.nih.gov/?objectid=974B2C24-030F-D308-60E11D088F83FADB
Organization for Economic Cooperation and Development (OECD): eChem Portal	http://www.echemportal.org/echemportal/substancesearch/page.action?pageID=0 The OECD eChemPortal allows simultaneous searching of reports and datasets by chemical name and number and by chemical property. Direct links to collections of chemical hazard and risk information prepared for government chemical review programs at national, regional and international levels are obtained. Classification results according to national/regional hazard classification schemes or to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) are provided when available. The list of participating databases can be accessed here: http://www.echemportal.org/echemportal/substancesearch/page.action;jsessionid=1AB4C820B2D854B7FB9381877022B9F6?pageID=2

Hazard Information (Data on all toxicological endpoints)	
Providers/ Data Source	**Description**
National Library of Medicine Databases	http://chem.sis.nlm.nih.gov/chemidplus/chemidheavy.jsp Accessed through ChemID Plus, searching on a chemical name or ID produces results that are linked to all NLM databases, including: Registry of Toxic Effects of Chemical Substances (RTECS) ATSDR Public Health Statements ATSDR Toxicological Profiles ATSDR ToxFAQS
TSCATS	The Toxic Substance Control Act Test Submission Database http://www.syrres.com/esc/tscats.htm
California Office of Environmental Health Hazard Assessment	Risk assessment documents prepared by OEHHA on certain Proposition 65 chemicals can be accessed through the links provided in the spreadsheet at: http://oehha.ca.gov/prop65/prop65_list/files/P65list110411links.xlsx
USEPA - Ambient Water Quality Criteria Documents	http://www.epa.gov/waterscience/criteria/wqcriteria.html
USEPA - Drinking Water Standards Health Effects Support Documents	http://www.epa.gov/safewater/standards.html
USEPA - ECOTOX Database	http://www.epa.gov/ecotox
IPCS Concise International Chemical Assessment Documents (CICADs)	http://www.inchem.org/pages/cicads.html

APPENDIX B: Data Sources for Exposure Scoring

Data Sources for Exposure, Uses, and Environmental Fate (P and B) Scoring

Data Type	Data Source
Uses	Inventory Update Reporting and Chemical Data Reporting (IUR/CDR) Premanufacture Notice (PMN) Database (confidential) Design for the Environment chemicals database (confidential) High Production Volume (HPV) Challenge Submissions EPA Hazard Characterizations and Risk Based Prioritizations OECD Screening Information Assessment Profiles and Reports Screening Information Data Sets (SIDS) Documents National Institutes of Health (NIH) Household Product Database NLM Hazardous Substances Data Bank NLM- Hazmap-Occupational exposure to hazardous agents Source Ranking Database Chemical assessments by other governmental organizations Open literature
Environmental releases	Toxics Release Inventory (TRI) National Emission Inventory (NEI) Database U.S. EPA NIH Hazardous Substances Data Bank
General human exposures, including indoor air contaminants	National Report on Human Exposure to Environmental Chemicals (CDC NHANES) Report to the California Legislature Indoor Air Pollution in California. http://www.arb.ca.gov/research/indoor/ab1173/rpt0705.pdf German Environmental Survey- chemicals in indoor air http://www.umweltbundesamt.de/gesundheite/survey/index.htm NLM Hazardous Substances Data Bank Open Literature
Environmental exposures	National Air Quality System (AQS) U.S. EPA National Contaminant Occurrence Database (NCOD) U.S. EPA Current National Recommended Water Quality Criteria U.S. EPA National Water-Quality Assessment Program (USGS NAWQA) EPA Fish Tissue Studies Clean Air Act Hazardous Air Pollutants (HAPs) Clean Water Act Priority Pollutants Superfund Chemical Data Matrix EPA: Targeted National Sewage Sludge Survey Report Groundwater chemicals Desk reference Chemicals in Groundwater Desk reference 2007 EPA Drinking water Chemical contaminant lists New York State Ambient Air monitoring program California Air Resources Board (ambient air) Washington State Background Soil concentration study NLM Hazardous Substances Data Bank Open literature

Data Type	Data Source
Environmental Fate (Persistence and Bioaccumulation)	USEPA: HPVIS Hazard Characterizations prepared by EPA on chemicals in the High Production Volume Challenge Program (HPV): http://iaspub.epa.gov/oppthpv/hpv_hc_characterization.get_report?doctype=2 Risk-Based or Hazard-Based Prioritizations prepared by EPA under the Chemical Assessment and Management Program (ChAMP): http://iaspub.epa.gov/oppthpv/existchem_hpv_prioritizations.report Organization for Economic Cooperation and Development (OECD): eChem Portal http://www.echemportal.org/echemportal/substancesearch/page.action?pageID=0 http://www.echemportal.org/echemportal/substancesearch/page.action;jsessionid=1AB4C820B2D854B7FB9381877022B9F6?pageID=2 SRC Environmental Fate Databases http://www.srcinc.com/what-we-do/efdb.aspx National Library of Medicine Hazardous Substances Databank http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB Japanese National Institute of Technology and Evaluation (NITE). Biodegradation and Bioconcentration of the Existing Chemical Substances under the Chemical Substances Control Law NITE http://www.safe.nite.go.jp/english/kizon/KIZON_start_hazkizon.html

APPENDIX C: Derivation of Exposure Scores for Use Types and Release Scores for TRI and Non-TRI Chemicals

Criteria I: Use Type

A variety of use information was reviewed to determine whether chemicals were used for consumer, commercial, or industrial purposes. At least two data sources were used to confirm consumer uses. For example, a reported use in EPA's IUR alone was not deemed sufficient to identify a chemical as being in a consumer product. Also note that many chemicals are present in several different product use and functional use categories. All reported uses were considered, and the use with the highest exposure potential informed the prioritization ranking. See Appendix B for additional information on data sources.

Chemicals that were given a rank of three are believed to be present in consumer products and have high potential for exposure due to widespread uses. Chemicals that received a high score have higher potential for exposure due to high likelihood of releases from the product (off-gassing) and high potential for direct contact during application or use based on close proximity. Examples of product criteria that have an increased likelihood of exposure include: products that are not fully cured (chemical reaction is occurring on-site); products that are spray-applied or brush-applied; products that are liquids, gases, or otherwise have the potential to volatilize; products that have the potential to off-gas, degrade, or otherwise emit chemicals over time; and products that have the potential to be incorrectly applied or used also received a rank of three. Some organizations may identify higher exposure potential uses as being dispersive. Examples of product use categories that have this increased likelihood of exposure include: paints and coatings; adhesives, sealants, and elastomers; building materials such as insulation; soaps and detergents; hair care products; water treatment products; floor coverings; automotive care products; and arts, crafts, and hobby materials.

Chemicals that were given a rank of two had moderate exposure. Chemicals that received a moderate score have moderate potential for exposure because they may be present within a chemically stable matrix; have lower or slower likelihood of release from the product, and have more indirect or bystander exposure. There may be increased distance and time between product sources and individual receptors. These chemicals may slowly off-gas or partition to dust over time. Examples of product use categories include: plastic and rubber products, electronics products, furniture, and foam seating and bedding products.

Chemicals were given a rank of one if at least one commercial use for that chemical was reported in IUR.

Chemicals that were not reported in IUR or were reported in IUR with industrial uses but no commercial or consumer uses were given a rank of zero for the use type criterion of exposure.

Criteria II: General & Environmental Exposure

A variety of data sources were used to compile information on chemicals present within the environment: ambient air, surface water, groundwater, drinking water, soil, indoor environments (air or dust), and chemicals present within biota (humans, fish, animals, or plants). Only a small percentage of all chemicals are actually measured for in various media for reasons such as a lack of

adequate sampling and analytical methods and insufficient resources to collect data. Many of the chemicals identified were not able to be ranked for this criterion due to lack of data.

A summary of the number of chemicals identified in different media is provided below. Note that this compilation of chemicals is an initial effort based on readily available and publicly accessible data. It is not a complete or comprehensive assessment of number of chemicals present in any given environmental or biological media. Approximately two-thirds of these chemicals are on the TSCA inventory while the other one-third is not. Refer to Appendix B for additional information on data sources for each media.

Number of Chemicals Reported in Environmental Media

Occurrence of chemicals (by media)	Number of chemicals
Surface water	401
Ground water	407
Ambient air	409
Soil	270
Indoor environments	300
Drinking water	247
Biota	360
Total	1215

Criteria III: Release Score

III. A. Release Scores for TRI Chemicals

The release score for each chemical was determined using the aggregated releases from the TRI data fields listed in the following table. The 2008 TRI database was used for the chemical ranking scheme. A ranking of 3 was assigned for a sum of releases greater than 100,000 lb/yr, a ranking of 2 for a sum of releases greater than 5,000 lb but less than or equal to 100,000 lb/year, and a ranking of 1 for a sum of releases less than 5,000 lb/yr.

2008 TRI Data Fields for Release Score

TRI Data Field	
Total Fugitive Air Emissions	Wastewater Treatment (Excluding POTWs)
Total Stack Air Emissions	Landfills/Disposal Surface Impoundments
Total Surface Water Discharge	Surface Impoundment
Total Other On-Site Land Releases (Other Landfills)	Other Landfills
Total Land Treatment	Land Treatment
Total Surface Impoundments	Other Land Disposal
Total Other Disposal	Unknown
POTWs - Total Transfers - Metals Only	RCRA Subtitle C Surface Impoundments (M66)
Transfers To POTWs (Non-Metals)	Other Surface Impoundments (M67)
Transfers To POTWs (Metals And Metal Compounds)	

III. B. Release Scores for Non-TRI Chemicals

For chemicals not reported to TRI, 2006 IUR data were used to rank chemicals for potential to be released to the environment. The release ranking was derived based on at least three of the following four factors: (1) IUR Production Volume Ranking; (2) IUR Number of Manufacturing, Processing, and Use Sites Ranking; (3) IUR Industrial and Downstream Processing and Use Ranking; and (4) IUR Commercial/Consumer Use Rankings.

Production Volume and Number of Sites Rankings

For the production volume ranking, data from the non-CBI public IUR database were used to rank chemicals using the following cut-offs: greater than or equal to 1,000,000 lb/year for a high ranking of 3; less than 1,000,000 and greater than or equal to 500,000 lb/year for a medium ranking of 2; and less than 500,000 lb/year for a low ranking of 1.

The number of industrial sites ranking, data on manufacturing, processing, and use sites in non-CBI public IUR database were used to rank chemicals using the following cut-offs: greater than or equal to 1,000 sites for a high ranking of 3; less than 1,000 and greater than or equal to 99 sites for a medium ranking of 2; and less than 100 sites for a low ranking of 1.

Industrial Processing and Use (IPU) Ranking

For the industrial processing and use ranking, EPA examined the following codes reported under IUR for each chemicals (see the table of sample categories, below): North American Industrial Classification System (NAICS) code, Process or Use code, and the Industrial Function Category. Each 3-code combination was assigned a ranking (high/moderate/low) based on the potential to be released during the industrial processing/use and downstream use. The Agency ranked each 3-code combination using expert judgment, generic scenarios, and past experience with new and existing chemical assessment. The 3-code combination with highest ranking was used as the score for the IPU ranking for the chemical.

The resulting industrial rankings were modified based on whether the chemical was reported as site-limited by all IUR submitters of that chemical or whether industrial uses may have been required to be reported in IUR. Site-limited chemicals were given an IPU Ranking of 1.

Under the IUR, reporters had an option to indicate if industrial processing and use (IPU) information was not applicable to their chemical; if all reporters of a chemical indicated that the industrial processing and use information was not applicable, EPA assumed there was no such use and assigned a low ranking of 1. For chemicals with an IPU ranking of 1 or 2 that had one or more IPUs reported as "NRO," the rankings were developed based solely on reported IPUs. No ranking was developed for chemicals with all IPUs reported as "NRO." EPA assigned a high ranking of 3 for chemicals with at least one reported IPU code with a high potential for widespread releases.

Sample of 2006 IUR Industrial Processing and Use Reporting Categories		
Industrial Function Categories	**Industrial Processing or Use**	**Small Sample of NAICS**
Adsorbents and absorbents	Processing as a reactant	Petrochemical manufacturing
Adhesives and binding agents	Processing – incorporation into formulation, mixture or reaction product	Synthetic dye and pigment manufacturing
Aerosol propellants	Processing – incorporation into article	Other basic inorganic chemical manufacturing
Agricultural chemicals (non-pesticide)	Processing – repackaging	Resin and synthetic rubber manufacturing
Anti-adhesive agents	Use - non-incorporative activities	Fertilizer manufacturing
Bleaching agents		Paint and coating manufacturing
Coloring agents, dyes		Printing ink manufacturing
Coloring agents, pigments		Plastics bottle manufacturing
Corrosion inhibitors and anti-scaling agents		Tire manufacturing
Fillers		Cement manufacturing
Fixing agents		Abrasive product manufacturing
Flame retardants		Ferrous metal foundries
Flotation agents		Electric power generation
Fuels		
Functional fluids		
Intermediates		
Lubricants		
Odor agents		
Oxidizing agents		
pH-regulating agents		
Photosensitive chemicals		
Plating agents and metal surface treating agents		
Processing aid, not otherwise listed		
Process regulators, used in vulcanization or polymerization processes		
Process regulators, other than polymerization or vulcanization processes		
Reducing agents		
Solvents (for cleaning or degreasing)		
Solvents (which become part of product formulation or mixture)		
Solvents (for chemical manufacture and processing and are not part of product at greater than one percent by weight)		
Stabilizers		
Surface active agents		
Viscosity adjustors		
Other		

Commercial Use (C) Release Ranking

For the commercial use ranking, EPA examined each IUR Commercial Use Code reported for the chemicals and assigned a ranking based on their potential to be released during use. For the purpose of this screening exercise, it was assumed that all the "C" use codes in the 2006 IUR included commercial uses. The Agency used past experience in new and existing chemical assessments of similar chemicals and exposure scenarios, coupled with expert judgment, to examine each use to place the chemical in a high, moderate, or low ranking. The use code with the highest ranking was used as the score for the commercial use ranking for the chemical.

The following table lists samples of rankings associated with certain uses. Commercial uses considered likely to result in air and/or water releases were assigned a high ranking score of 3. Uses with low or no potential for releases were given a low score of 1. The rest of the uses were given a score of 2.

Under the IUR, reporters had an option to indicate if commercial/consumer information was not applicable to their chemical. If all reporters of a chemical indicated that the commercial/consumer information was not applicable, EPA assumed there was no commercial use of the chemical, resulting in a low ranking (i.e., score of 1). For chemicals with a ranking of 1 or 2 that had one or more commercial/consumer uses reported as "not readily obtainable" (NRO) or "Others," rankings were developed based solely on the remaining reported uses. No ranking was developed for chemicals with all commercial/consumer uses reported as "NRO" Or "Others." EPA assigned a High ranking of 3 for chemicals with at least one reported C code with a high potential for widespread releases. If multiple uses were reported, EPA referred to the use code that resulted in the highest ranking.

2006 IUR Commercial Use Categories

2006 IUR Commercial Use
C01 Adhesives and sealants
C02 Agricultural products (non-pesticide)
C03 Artists' supplies
C04 Automotive care products
C05 Electrical and electronic products
C06 Fabrics, textiles and apparel
C07 Glass and ceramic products
C08 Lawn and garden products (non-pesticide)
C09 Leather products
C10 Lubricants, greases and fuel additives
C11 Metal products
C12 Paints and coatings
C13 Paper products
C14 Photographic supplies
C15 Polishes and sanitation goods
C16 Rubber and plastic products
C17 Soaps and detergents
C18 Transportation products
C19 Wood and wood furniture

Scoring Releases for Non-TRI Chemicals

The four ranking scores described above – Production Volume (PV), Number of Sites, Industrial Processing and Use (IPU) ranking, and Commercial Use (C) ranking – were added to develop the release score for non-TRI chemicals. When either IPU or C could not be scored, but all the other factors could be scored, the release score was derived based on the remaining three ranking scores. If neither the IPU nor the C codes could be scored, no release score was assigned to the chemical.

When all four sub-scores were available, the possible total score ranged from 4 to 12, and the non-TRI Release scores were ranked as follows:

High (3) = 9 - 12
Moderate (2) = 7 - 8
Low (1) = 4 - 6

When only three out of the four sub-scores were available (if either IPU or C could not be scored), the possible total score ranged from 3 to 9, and the non-TRI Release scores were ranked as follows:

High (3) = 7 - 9
Moderate (2) = 5 - 6
Low (1) = 3 – 4

The Non-TRI Release score for each chemical was added to the other exposure component scores to derive the Total Exposure Score, as described in the body of this paper.

APPENDIX D: The TSCA Work Plan Chemicals

TSCA Work Plan Chemicals

The TSCA Work Plan Chemicals Methods Document (39 pp., 264 KB) explains the hazard, exposure, and persistence/bioaccumulation criteria, the data sources used, and how chemicals were scored.

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
2012 Work Plan Chemicals								
Antimony & Antimony Compounds	Possible human carcinogen Developmental and reproductive toxicity Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air and soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	Category
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8,-hexamethylcyclopenta [g]-2-benzopyran *(HHCB)*	Developmental toxicity	2	Widely used in consumer products Present in biomonitoring Estimated to have high releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Dispersive	1222-05-5
Long-chain chlorinated paraffins (C18-20)	Chronic toxicity to target organs including the liver, kidneys and thyroid Aquatic toxicity	2	Used in commercial/industrial products Present in biomonitoring, surface water and soil	2	High environmental persistence High bioaccumulation potential	3	Industrial Dispersive	Category
Medium-chain chlorinated paraffins (C14-17)	Chronic toxicity to target organs including the liver, kidneys and thyroid Aquatic toxicity	2	Used in consumer products Estimated to have high releases to the environment	2	High environmental persistence High bioaccumulation potential	3	Consumer Dispersive Industrial	Category
Methylene chloride	Probable human carcinogen	3	Widely used in consumer products Present in drinking water, indoor environments, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	75-09-2
N-Methylpyrrolidone	Reproductive toxicity	3	Widely used in consumer products Present in drinking water and indoor environments High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	872-50-4
Trichloroethylene *(TCE)*	Probable human carcinogen	3	Widely used in consumer products Present in drinking water, indoor environments, surface water, ambient air, groundwater and soil	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	79-01-6

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Additional Work Plan Chemicals (alphabetical order)								
Acetaldehyde	Possible human carcinogen	3	Used in consumer products Present in drinking water, indoor environments, ambient air and groundwater High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	75-07-0
Acrylonitrile	Probable human carcinogen	3	Widely used in consumer products Present in indoor environments, surface water, ambient air and groundwater High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	107-13-1
tert-Amyl methyl ether	Chronic toxicity Central nervous system effects Potential carcinogenicity to specific target organs	2	Widely used in consumer products Present in drinking water, surface water and ambient air Estimated to have moderate releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	994-05-8
Anthra[2,1,9-def:6,5,10-d'e'f'] diisoquinoline-1,3,8,10(2H,9H)-tetrone *(Pigment Violet 29)*	Aquatic toxicity	3*	Widely used in consumer products Estimated to have moderate releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	81-33-4
Arsenic & Arsenic Compounds	Known human carcinogen Neurotoxicity Central nervous system effects Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air and soil High reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Category
Asbestos & Asbestos-like Fibers	Known human carcinogen Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in indoor environments	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Category
Benzenamine	Probable human carcinogen	3	Used in consumer products Present in ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	62-53-3

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Benzene	Known human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	71-43-2
Benzo[a]pyrene	Known human carcinogen	3	Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil	2	High environmental persistence Moderate bioaccumulation potential	3	Dispersive Industrial	50-32-8
Benzo(a)anthracene	Probable human carcinogen	3	Present in biomonitoring, indoor environments, surface water, ambient air, groundwater and soil	2	High environmental persistence Moderate bioaccumulation potential	3	Dispersive Industrial	56-55-3
1-Bromopropane	Possible human carcinogen	3	Widely used in consumer products Present in drinking water, indoor environments, surface water, ambient air, groundwater and soil Estimated to have high releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	106-94-5
Butanamide, 2,2'-[(3,3'-dichloro[1,1'- biphenyl]-4,4'-diyl)bis(azo)]bis[N-(4-chloro-2,5 -dimethoxyphenyl)-3-oxo- *(Pigment Yellow 83)*	Acute toxicity	2	Used in consumer products Estimated to have high releases to the environment	3	High environmental persistence High bioaccumulation potential	3	Consumer Industrial	5567-15-7
Butanamide, 2-[(4-methoxy-2-nitrophenyl) azo]-N-(2-methoxyphenyl)-3-oxo- *(Pigment Yellow 65)*	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer	6528-34-3
4-sec-Butyl-2,6-di-tert-butylphenol	Chronic toxicity	2	Widely used in consumer products Estimated to have moderate releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	17540-75-9
Cadmium & Cadmium Compounds	Known human carcinogen Chronic cardiovascular, renal and musculoskeletal effects Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air and soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	Category

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Carbon tetrachloride	Probable human carcinogen	3	Used in commercial/industrial products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	2	High environmental persistence Low bioaccumulation potential	2	Industrial	56-23-5
p-Chloro-o-toluidine	Probable human carcinogen	3	Present in biomonitoring, surface water and soil	2	Moderate environmental persistence Low bioaccumulation potential	2	Industrial	95-69-2
Chromium & Chromium Compounds	Known human carcinogen Reproductive toxicity Developmental toxicity Acute and chronic toxicity from inhalation exposures	3	Used in commercial/industrial products Present in ambient air High reported releases to the environment	2	High environmental persistence Moderate bioaccumulation potential	3	Industrial	Category
Cobalt & Cobalt Compounds	Cardiovascular and central nervous system effects Acute and chronic toxicity from inhalation exposures	3	Used in consumer products Present in biomonitoring, surface water, ambient air and soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Industrial	Category
Creosotes	Probable human carcinogen	3	Widely used in consumer products Present in groundwater and soil High reported releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Industrial	8001-58-9
Cyanide Compounds (Limited to dissociable compounds)	Neurotoxicity Reproductive toxicity Central nervous system effects	3	Widely used in consumer products Present in drinking water, surface water and soil High reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Category
Dibenz(a,h)anthracene	Probable human carcinogen	3	Present in indoor environments, surface water, ambient air, groundwater and soil	2	Moderate environmental persistence Moderate bioaccumulation potential	2	Dispersive	53-70-3
Dibromochloromethane	Possible human carcinogen	3	Present in biomonitoring, surface water, ambient air and soil	2	Moderate environmental persistence Low bioaccumulation potential	2	Industrial	124-48-1

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
3,3'-Dichlorobenzidine dihydrochloride	Probable human carcinogen	3	Used in consumer products Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	612-83-9
1,1-Dichloroethane	Mutagenicity	2	Used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater and soil Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	75-34-3
1,2-Dichloroethane	Possible human carcinogen	3	Used in commercial/industrial products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	107-06-2
1,2-Dichloropropane	Acute mammalian toxicity	2	Used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	78-87-5
trans-1,2-Dichloroethylene	Chronic toxicity	2	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater and soil	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	156-60-5
p-Dichlorobenzene	Possible human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, ambient air, surface water, groundwater and soil Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	106-46-7

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
o-Dichlorobenzene	Chronic toxicity	2	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air and groundwater Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Dispersive Industrial	95-50-1
Dichloroacetic acid	Possible human carcinogen	3	Used in consumer products Present in drinking water	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	79-43-6
1,2-Dimethoxyethane *(Monoglyme)*	Reproductive toxicity Developmental toxicity Chronic toxicity	3	Widely used in consumer products Estimated to have high releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	110-71-4
1,4-Dioxane	Possible human carcinogen	3	Widely used in consumer products Present in groundwater, ambient air and indoor environments High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	123-91-1
Ethanone, 1-(1,2,3,4,5,6,7,8-octahydro- 2,3,8,8-tetramethyl-2-naphthalenyl)-	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Industrial	54464-57-2
Ethanone, 1-(1,2,3,4,5,6,7,8-octahydro- 2,3,5,5-tetramethyl-2-naphthalenyl)-	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Industrial	54464-59-4
Ethanone, 1-(1,2,3,5,6,7,8,8a-octahydro- 2,3,8,8-tetramethyl-2-naphthalenyl)-	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	68155-66-8
Ethanone, 1-(1,2,3,4,6,7,8,8a-octahydro- 2,3,8,8-tetramethyl-2-naphthalenyl)-	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	68155-67-9

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Ethylbenzene	Possible human carcinogen	3	Used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	100-41-4
Ethylene dibromide	Probable human carcinogen	3	Used in commercial/industrial products Present in drinking water, indoor environments, surface water, ambient air, groundwater and soil Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	106-93-4
bis(2-Ethylhexyl) adipate	Possible human carcinogen	3	Widely used in consumer products Present in drinking water and indoor environments Estimated to have high releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	103-23-1
bis(2-Ethylhexyl) -3,4,5,6-tetrabromophthalate *(TBPH)*	Developmental toxicity Acute and chronic aquatic toxicity	2	Used in consumer products Present in indoor environments Estimated to have moderate releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	26040-51-7
2-Ethylhexyl-2,3,4,5-tetrabromobenzoate *(TBB)*	Developmental toxicity Acute and chronic aquatic toxicity	2	Used in consumer products Present in indoor environments and soil	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	183658-27-7
Formaldehyde	Known human carcinogen	3	Used in consumer products Present in indoor environments, drinking water, ambient air and groundwater High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	50-00-0
Hexabromobiphenyl	Possible human carcinogen	3	Used in consumer products Present in ambient air and soil	2	High environmental persistence High bioaccumulation potential	3	Industrial	36355-01-8
Hexachlorobutadiene	Possible human carcinogen	3	Present in indoor environments, surface water, ambient air, groundwater and soil Relatively small reported releases to the environment	1	High environmental persistence High bioaccumulation potential	3	Industrial	87-68-3

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Hexachlorocyclohexane	Possible human carcinogen	3	Present in biomonitoring and surface water	2	High environmental persistence Moderate bioaccumulation potential	3	Industrial	608-73-1
1-Hexadecanol	Chronic toxicity	2	Widely used in consumer products Present in surface water, ambient air and soil Estimated to have high releases to the environment	3	Low environmental persistence Moderate bioaccumulation potential	2	Consumer Dispersive Industrial	36653-82-4
Lead & Lead Compounds	Neurotoxicity Developmental toxicity Reproductive toxicity	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air and soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	Category
Mercury & Mercury Compounds	Neurotoxicity Developmental toxicity Chronic nervous system and hepatic effects	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air and soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	Category
4,4'-Methylene bis(2-chloroaniline)	Known human carcinogen	3	Widely used in consumer products Present in ambient air Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	101-14-4
Naphthalene	Possible human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	91-20-3
2-Naphthalenecarboxylic acid, 4-[(4-chloro-5-methyl-2-sulfophenyl) azo]-3-hydroxy-, calcium salt (1:1) *(Pigment Red 52)*	Aquatic toxicity	3*	Widely used in consumer products Estimated to have moderate releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	17852-99-2

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Nickel & Nickel Compounds	Known human carcinogen Acute and chronic toxicity from inhalation exposures	3	Used in consumer products Present in ambient air High reported releases to the environment	2	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Category
N-Nitrosodiethylamine	Probable human carcinogen	3	Present in biomonitoring, surface water, and ambient air, groundwater and soil Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Industrial	55-18-5
N-Nitrosodimethylamine	Probable human carcinogen	3	Widely used in consumer products Present in drinking water, surface water, ambient air, groundwater and soil	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Dispersive Industrial	62-75-9
N-Nitrosodiphenylamine	Probable human carcinogen	3	Used in consumer products Present in surface water, groundwater and soil Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	86-30-6
Octamethylcyclotetrasiloxane	Reproductive toxicity	2	Used in consumer products Present in biomonitoring, drinking water, indoor environments and surface water Estimated to have high releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Dispersive Industrial	556-67-2
4-tert-Octylphenol *4-(1,1,3,3-Tetramethylbutyl)-phenol*	Aquatic toxicity	3*	Used in consumer products Present in biomonitoring and drinking water Estimated to have moderate releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	140-66-9
p,p'-Oxybis(benzenesulfonyl hydrazide)	Reproductive toxicity Mutagenicity	3	Used in consumer products Estimated to have moderate releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer	80-51-3
Pentabromophenol	Acute toxicity	3	Used in consumer products Present in surface water and soil	2	High environmental persistence Low bioaccumulation potential	2	Industrial	608-71-9
Phthalic anhydride	Respiratory sensitizer	3	Widely used in consumer products Present in groundwater and ambient air High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	85-44-9

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
Polychlorinated naphthalenes	Acute dermal toxicity Chronic liver effects	1	Widely used in consumer products Present in biomonitoring	3	High environmental persistence High bioaccumulation potential	3	Industrial	Category
Quartz (Respirable forms only)	Probable human carcinogen	3	Widely used in consumer products Present in drinking water Estimated to have high releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	14808-60-7
Styrene	Possible human carcinogen Central nervous system effects	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	100-42-5
1,2,4,5-Tetrachlorobenzene	Chronic toxicity	3	Present in ground water and soil	1	Moderate environmental persistence High bioaccumulation potential	3	Industrial	95-94-3
Tetrachloroethylene *(PERC)*	Probable human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, ambient air, groundwater and soil High reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Dispersive Industrial	127-18-4
Tribromomethane *(Bromoform)*	Probable human carcinogen	3	Used in consumer products Present in biomonitoring, drinking water, surface water, ambient air and groundwater Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	75-25-2
1,1,2-Trichloroethane	Possible human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, and groundwater and soil Moderate reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	79-00-5
Triglycidyl isocyanurate	Reproductive toxicity Mutagenicity Acute toxicity from inhalation exposures	3	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	1	Consumer Industrial	2451-62-9

Chemical Name	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	CASRN
2,4,6-Tri-tert-butylphenol	Chronic toxicity and liver effects	2	Widely used in consumer products Present in indoor environments Estimated to have moderate releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Industrial	732-26-3
Tris(2-chloroethyl) phosphate *(TCEP)*	Mutagenicity Limited evidence of carcinogenicity	2	Widely used in consumer products Present in drinking water and indoor environments Estimated to have moderate releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	115-96-8
Tris(2,3-dibromopropyl) phosphate *(TBP)*	Probable human carcinogen	3	Widely used in consumer products Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer	126-72-7
Vinyl chloride	Known human carcinogen	3	Used in consumer products Present in drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	75-01-4
m-Xylene	Reproductive toxicity Developmental toxicity	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	108-38-3
o-Xylene	Chronic toxicity	3	Used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	95-47-6
p-Xylene	Reproductive toxicity	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	106-42-3

Note: An asterisk (*) in the Hazard Score column indicates the score is based solely on aquatic (environmental) toxicity.

TSCA Work Plan for Chemical Assessments: 2014 Update

Environmental Protection Agency

Office of Pollution Prevention and Toxics

October 2014

I. Overview

EPA is updating its list of existing chemicals for assessment under the Toxic Substances Control Act (TSCA); this is known as the TSCA Work Plan for Chemical Assessments. The changes to the TSCA Work Plan for Chemical Assessments reflect updated industry data submitted to EPA through the Toxics Release Inventory (TRI) in 2011 and the TSCA Chemical Data Reporting (CDR) requirements in 2012 on chemical releases and potential exposures. This is the first update to the TSCA Work Plan for Chemical Assessments, which EPA presented in early 2012. As newer data from TRI and CDR become available, EPA will update the TSCA Work Plan for Chemical Assessments. The Agency uses this Work Plan to focus the activities of the Existing Chemicals Program in the Office of Pollution Prevention and Toxics (OPPT) so that existing chemicals having the highest potential for exposure and hazard are assessed, and, if warranted, are subject to risk reduction actions.

EPA notes that identification of a chemical on the TSCA Work Plan for Chemical Assessments does not itself constitute a finding by the Agency that the chemical presents a risk to human health or the environment. Rather, identification of a chemical on the TSCA Work Plan for Chemical Assessments indicates only that the Agency intends to consider it for assessment. The Agency believes that identifying these chemicals early in the review process would afford all interested parties the opportunity to bring additional relevant information on those chemicals to the Agency's attention to further inform the assessment.

Identification of chemicals for the TSCA Work Plan for Chemical Assessments does not mean EPA would not consider other chemicals for assessment and potential risk reduction action under TSCA and other statutes; for example, if a potential risk has been identified with a chemical or type of chemicals, EPA may consider these chemicals. EPA will consider other chemicals if warranted by available information.

II. Background

The 2012 TSCA Work Plan for Chemical Assessments identified 83 chemicals for assessment by EPA as part of its chemical safety program. The screening process for identifying these chemicals is based on a combination of hazard, exposure (including via uses), and persistence and bioaccumulation characteristics, and is described in the TSCA Work Plan Chemicals Methods Document. The Agency continues to use this process, which focuses on chemicals that meet one or more of the following factors:

- Potential concern for children's health (for example, because of reproductive or developmental effects)
- Neurotoxic effects
- Persistent, bioaccumulative and toxic
- Probable or known carcinogens
- Used in children's products or in products to which children may be highly exposed
- Detected in biomonitoring programs.

EPA also considered other factors in determining whether a chemical should be included on the TSCA Work Plan for Chemical Assessments. Some chemicals identified as 'high' through this scoring system may not necessarily be practical candidates for assessment under TSCA when other information

is factored into the process. For example, the particular risks presented by certain chemicals may already be addressed by significant regulation under other statutes.

III. 2014 Update to the TSCA Work Plan for Chemical Assessments

EPA updated the TSCA Work Plan for Chemical Assessments by using more recent information submitted in 2012 under the Chemical Data Reporting Rule (CDR) and data reported in 2011 to the Toxics Release Inventory (TRI). These data were used to update the exposure ranking for the 345 existing chemicals that were generated under the two-step screening process used in the 2012 TSCA Work Plan for Chemical Assessments. In 2012, the Agency used several sources to identify chemicals meeting prioritization factor criteria as potential candidates for review; a total of 1,235 chemicals were identified. This group was screened to determine if any chemicals should be excluded because they are not subject to TSCA or there was already significant regulation under TSCA, or due to radioactivity, complex process streams, natural occurrence, or other properties. After these chemicals were excluded, 345 chemicals remained as potential candidates and entered the second stage of the Work Plan screening, which scored them under three characteristics: hazard, exposure, and potential for persistence and bioaccumulation. Details of how chemicals were screened and criteria were used are in the TSCA Work Plan Chemicals: Methods Document.

In addition to re-screening the 345 chemicals identified in 2012, EPA used the methodology developed for the TSCA Work Plan for Chemical Assessments to screen the Action Plan chemicals, which were not part of the 2012 TSCA Work Plan for Chemical Assessments, as well as two chemical flame retardants identified during EPA's development of a flame retardant strategy.

Based on this assessment, EPA is removing 15 of the original chemicals in the TSCA Work Plan for Chemical Assessments, consolidating one chemical, and adding 23 chemicals to the 2014 update to the TSCA Work Plan for Chemical Assessments, including five Action Plan chemicals or groups. The TSCA Work Plan for Chemical Assessments: 2014 Update contains 90 chemicals.

Completed Chemical Assessments

EPA has completed assessments for four chemicals that are on the TSCA Work Plan for Chemical Assessments:

- Trichloroethylene (TCE): This risk assessment addresses trichloroethylene (TCE) as a degreaser, a spot-cleaner in dry cleaning and a spray-on protective coating. On June 25, 2014, EPA released the final risk assessment that identified health risks to consumers using spray aerosol degreasers and spray fixatives and to workers when TCE is used as a degreaser in small commercial shops and as a stain removing agent in dry cleaning.

- Methylene Chloride or Dichloromethane (DCM): This risk assessment addresses methylene chloride in paint stripper products. On August 28, 2014, EPA released the final risk assessment that indicates health risks to both workers and consumers who use these products, and to bystanders in workplaces and residences where methylene chloride is used.

- 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8,-hexamethylcyclopenta[γ]-2-benzopyran (HHCB): This risk assessment addresses ecological risks from HHCB as a fragrance ingredient in commercial and consumer products. On August 28, 2014, EPA released the final risk assessment that indicated no concern for this use of HHCB.

- Antimony Trioxide (ATO): This risk assessment addresses effects on ecological receptors from the use of antimony trioxide (ATO) as a synergist in halogenated flame retardants. On August 28, 2014, EPA released the final risk assessment that indicated no concern for this use of ATO.

a. Chemicals Added

i. Action Plan Chemicals

From 2009 to 2011, EPA published ten chemical Action Plans. Five chemicals or groups of chemicals that scored 'high' under the methodology developed for the TSCA Work Plan for Chemical Assessments methodology for which EPA has Action Plans are now included in the TSCA Work Plan for assessment. EPA added the following Action Plan chemicals to the TSCA Work Plan for Chemical Assessments:

- Bisphenol A (BPA)
- Decabromodiphenyl ether (decaBDE)
- Hexabromocyclododecane (HBCD)
- Nonylphenols and nonylphenol ethoxylates (NP/NPE)
- Group of phthalates (dibutyl phthalate (DBP), butyl benzyl phthalate (BBP), di-(2-ethylhexyl) phthalate (DEHP), di-*n*-octyl phthalate (DnOP), di-isononyl phthalate (DINP), di-isodecyl phthalate (DIDP), and di-isobutyl phthalate (DIBP)

Though a July 2014 report provided to the U.S. Consumer Product Safety Commission (CPSC) by the Chronic Hazard Advisory Panel (CHAP) on Phthalates and Phthalate Alternatives provided a risk assessment for the eight phthalates described in EPA's Action Plan, EPA is adding seven of these chemicals to the TSCA Work Plan for Chemical Assessments to determine whether any additional assessment is needed to supplement the report and address any TSCA-specific uses or exposure scenarios. One phthalate, di-*n*-pentyl phthalate (DnPP), is not being added since it is no longer in commerce.

Five of the ten Action Plan chemicals screened using the methodology of the TSCA Work Plan for Chemical Assessments will not be added to the TSCA Work Plan during this update.

- **Benzidine dyes** are not being added to the 2014 update of the TSCA Work Plan for Chemical Assessments because they are only moderately persistent and bioaccumulative, and have not been found to be present in human biomonitoring. Thus, the current exposure potential is considered low. EPA will propose a Significant New Use Rule for these chemicals so that the Agency can review any new uses before they are introduced into commerce.

- EPA has already begun risk management actions for **long-chain perfluorinated chemicals** (PFCs), which rank high for hazard due to chronic and developmental toxicity. PFCs

bioaccumulate in wildlife and humans, and are persistent in the environment. Use of one subgroup of PFCs (sulfonates) was discontinued in the United States from 2002 to 2006; additionally, in 2006 EPA and the eight major companies in the industry launched the 2010/15 PFOA Stewardship Program in which companies committed to reduce global facility emissions and product content of PFOA and related chemicals by 95 percent by 2010, and to work toward eliminating emissions and product content by 2015. However, EPA remains concerned about PFCs being produced by companies not participating in the stewardship program. Currently, the Agency is interested in gathering additional data regarding use of PFCs in imported articles before determining if these chemicals should be candidates for the assessment process.

- The diisocyanates **methylene diphenyl diisocyanate** (MDI) and **toluene diisocyanate** (TDI) are not being added to the TSCA Work Plan for Chemical Assessments because they are not persistent and bioaccumulative, due to their reactivity, and are not found in house dust (factors considered in the Work Plan Methodology). EPA intends to issue a SNUR for TDI. Given the toxicity and potential exposure of these chemicals, EPA will consider if other risk management actions are needed for these chemicals.

- EPA is not adding **short chain chlorinated paraffins** because they are no longer domestically produced or imported into the United States.

ii. Other Chemicals Added

In addition to the five Action Plan chemicals or groups being added, EPA is adding ten chemicals to the TSCA Work Plan for Chemical Assessments that in 2012 had been considered of moderate priority for assessment based on the TSCA Work Plan Methodology, and two chemicals that are part of a widely-used flame retardant.

Chemicals with an Increase in Score

Ten of the chemicals added are part of a group of 345 chemicals the Agency screened in 2012 during the development of the TSCA Work Plan for Chemical Assessments. They are:

- 1,3-Butadiene
- 2,5-Furandione
- 2-Dimethylaminoethanol
- 2-Hydroxy-4-(octyloxy)benzophenone
- 3,3’-Dichloro-benzidine
- 4,4'-(1-Methylethylidene)bis[2,6-dibromophenol] (TBBPA)
- Barium carbonate
- Dicyclohexyl phthalate
- Molybdenum and Molybdenum Compounds
- Pentachlorothiophenol

In the scoring process for the 2012 TSCA Work Plan for Chemical Assessments, these ten chemicals received a score of ‘moderate.’ Recently submitted CDR and TRI data (in 2012 and 2011, respectively) indicate that they are being domestically produced or imported in greater quantities and are being used in a larger variety of consumer and children’s products, leading to an increase in their

exposure score and a subsequent increase in their final score to 'high' under Step 2 of the screening process identified in the Methods Document for the TSCA Work Plan for Chemical Assessments. Details of their scores and the reasons for adding them are available in the TSCA Work Plan for Chemical Assessments: 2014 Update (at the end of this document).

Like the group of phthalates included in EPA's Action Plans (and described earlier), dicyclohexyl phthalate (DCHP) is also covered in the CHAP report on phthalates to CPSC. It also scores high under the methodology of the TSCA Work Plan for Chemical Assessments and will also be evaluated by EPA to determine if there are TSCA-specific scenarios that should be assessed.

Flame Retardants

Triphenyl phosphate (TPP) and isopropylated phenol, phosphate (iPTPP) are being added, though they were not among the chemicals screened in 2012. They came to the Agency's attention as part of EPA's analysis of flame retardant chemicals. Because TPP and iPTPP meet the screening criteria detailed in the methodology developed for the TSCA Work Plan for Chemical Assessments, they are being added to the TSCA Work Plan for Chemical Assessments: 2014 Update.

b. Chemicals Removed or Consolidated

Chemicals No Longer in Commerce

Of the original 83 chemicals in the TSCA Work Plan for Chemical Assessments, 67 had no change or had an increase in their potential exposure to people and the environment, and most continue to be on the TSCA Work Plan for Chemical Assessments. Thirteen chemicals are being removed from the TSCA Work Plan for Chemical Assessments because they are not currently in commerce based on data the Agency received under the CDR rule and as part of TRI reporting. Though these chemicals may be toxic, persistent and bioaccumulative, and may have been detected in human or environmental biomonitoring, they no longer present exposure potential from current consumer or commercial use. Thus, they are being removed from the TSCA Work Plan for Chemical Assessments. The chemicals being removed are:

- 1,2,4,5-Tetrachloro-benzene
- 4-Chloro-2-methylaniline (p-Chloro-o-toluidine)
- Benz(a)anthracene
- Dibenz(a,h)anthracene
- Dibromochloromethane
- Dichloroacetic acid
- Hexabromobiphenyl
- Hexachlorocyclohexane
- N-Nitroso-ethylamine
- N-Nitrosodimethylamine
- Pentabromophenol
- Polychlorinated naphthalenes
- Tris(2,3-di bromopropyl) phosphate (TBP)

EPA will continue to review data submitted for these chemicals. If new data indicate that these chemicals have returned to commerce, the Agency will update the TSCA Work Plan for Chemical Assessments.

Special Cases

EPA is removing mercury and mercury compounds from the TSCA Work Plan for Chemical Assessments because their hazards are already well characterized and EPA has a strong risk reduction effort in place. Protecting human health and the environment by reducing exposures to mercury and mercury compounds remains a priority for EPA, and the Agency has taken and continues to take risk management measures for these chemicals, including efforts to implement the Minamata Convention. Therefore, the Agency does not believe that its risk management activities on mercury and mercury compounds need additional assessment under the process for the TSCA Work Plan for Chemical Assessments.

EPA is also removing quartz from the TSCA Work Plan for Chemical Assessments because it presents a hazard only in the context of silicosis from the inhalation of very fine crystalline dust particles, which might occur only during such occupational activities as sandblasting or stone cutting; these potential exposures are specifically controlled under regulations issued by the Occupational Safety and Health Administration.

Polycyclic Aromatic Hydrocarbons

Benzo[a]pyrene is part of a group of polycyclic aromatic hydrocarbons (PAHs). EPA believes this chemical and other PAHs should be assessed as a category rather than as individual chemical substances. The exposure and release information EPA receives about PAHs is generally reported as a mixture of several PAHs, and not as individual chemicals. The Agency will evaluate several PAHs, including benzo[a]pyrene, as part of an assessment of creosote under the TSCA Work Plan for Chemical Assessments. Additional individual PAHs previously on the TSCA Work Plan for Chemical Assessments are being removed since they are no longer in commerce.

c. TSCA Work Plan for Chemical Assessments: 2014 Update

See table on next page.

TSCA Work Plan for Chemicals Assessments: 2014 Update

This document updates the June 2012 TSCA Work Plan for Chemical Assessment. The TSCA Work Plan Chemicals Methods Document explains the hazard, exposure, and persistence/bioaccumulation criteria, the data sources used, and how chemicals were scored. The 2014 Update describes why changes were made.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
1	Acetaldehyde	Added 2012	Possible human carcinogen	3	Used in consumer products Present in drinking water, indoor environments, ambient air, and groundwater High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	75-07-0
2	Acrylonitrile	Added 2012	Probable human carcinogen	3	Widely used in consumer products Present in indoor environments, surface water, ambient air, and groundwater High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	Not yet initiated	107-13-1
3	tert-Amyl methyl ether	Added 2012	Chronic toxicity Central nervous system effects Potential carcinogenicity to specific target organs	2	Widely used in consumer products Present in drinking water, surface water, and ambient air Estimated to have moderate releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	994-05-8

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
4	Anthra[2,1,9-def:6,5,10-d'e'f'] diisoquinoline-1,3,8,10(2H,9H)-tetrone (Pigment Violet 29)	Added 2012	Aquatic toxicity	3*	Widely used in consumer products Estimated to have moderate releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	81-33-4
5	**Antimony & Antimony Compounds**	**Added 2012**	**Possible human carcinogen Developmental and reproductive toxicity Acute and chronic toxicity from inhalation exposures**	**3**	**Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, and soil High reported releases to the environment**	**3**	**High environmental persistence Moderate bioaccumulation potential**	**3**	**Consumer Industrial**	**Final assessment complete August 2014**	**Category**
6	Arsenic & Arsenic Compounds	Added 2012	Known human carcinogens Neurotoxicity Central nervous system effects Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, soil High reported releases to the environment	2	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	Category
7	Asbestos & Asbestos-like Fibers	Added 2012	Known human carcinogens Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in indoor environments	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	Category

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
8	*Barium Carbonate*	*Added 2014*	*Acute toxicity*	*3*	*Used to manufacture paper, special glass, ceramics, bricks, enamels, paints, rubber, electrodes, and barium salts; used in oil well drilling, especially through gypsum; used in brines as a precipitant*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Consumer Industrial*	*Not yet initiated*	*513-77-9*
9	Benzenamine	Added 2012	Probable human carcinogen	3	Used in consumer products Present in ambient air, groundwater, and soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	62-53-3
10	Benzene	Added 2012	Known human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	Not yet initiated	71-43-2

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
11	*Bisphenol A (BPA)*	*Added 2014*	*Reproductive toxicity*	*3*	*Electrical and electronics equipment, optical media, linings in drinking water pipes, thermal paper coatings, automotive and transportation equipment*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Consumer Industrial*	*Not yet initiated*	*80-05-7*
12	1-Bromopropane	Added 2012	Possible human carcinogen	3	Widely used in consumer products Present in drinking water, indoor environments, surface water, ambient air, groundwater, soil Estimated to have high releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	Initiated 2013	106-94-5
13	*1,3-Butadiene*	*Added 2014*	*Known human carcinogen*	*3*	*Major commodity product of the petrochemical industry, usually produced as a by-product of ethylene Increasing usage in the formation of rocket fuels, plastics, resins, and commercial latex paints Reported uses in plastic products, textiles, apparel*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Consumer Industrial*	*Not yet initiated*	*106-99-0*

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
14	Butanamide, 2,2'-[(3,3'-dichloro[1,1'- biphenyl]-4,4'-diyl)bis(azo)]bis[N-(4-chloro-2,5 -dimethoxyphenyl)-3-oxo- (Pigment Yellow 83)	Added 2012	Acute toxicity	2	Used in consumer products Estimated to have high releases to the environment	3	High environmental persistence High bioaccumulation potential	3	Consumer Industrial	Not yet initiated	5567-15-7
15	Butanamide, 2-[(4-methoxy-2-nitrophenyl) azo]-N-(2-methoxyphenyl)-3-oxo- (Pigment Yellow 65)	Added 2012	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer	Not yet initiated	6528-34-3
16	*Butyl benzyl phthalate (BBP)* *1,2-Benzene-dicarboxylic acid, 1-butyl 2(phenylmethyl) ester*	*Added 2014*	*Chronic aquatic toxicity*	*3*	*Most widely used stain-resistant plasticizer in poly(vinyl chloride)* *Widely used in vinyl tile* *Used in commercial/ industrial products*	*3*	*Low environmental persistence* *Low bioaccumulation potential*	*1*	*Industrial* *Commercial* *Consumer*	*Not yet initiated*	*85-68-7*
17	4-sec-Butyl-2,6-di-tert-butylphenol	Added 2012	Chronic toxicity	2	Widely used in consumer products Estimated to have moderate releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	Not yet initiated	17540-75-9

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
18	Cadmium & Cadmium Compounds	Added 2012	Known human carcinogens Chronic cardiovascular, renal and musculoskeletal effects Acute and chronic toxicity from inhalation exposures	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	Not yet initiated	Category
19	Carbon tetrachloride	Added 2012	Probable human carcinogen	3	Used in commercial/industrial products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Industrial	Not yet initiated	56-23-5
20	Chromium & Chromium Compounds	Added 2012	Known human carcinogens Reproductive toxicity Developmental toxicity Acute and chronic toxicity from inhalation exposures	3	Used in commercial/industrial products Present in ambient air High reported releases to the environment	1	High environmental persistence Moderate bioaccumulation potential	3	Industrial	Not yet initiated	Category

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
21	Cobalt & Cobalt Compounds	Added 2012	Cardiovascular and central nervous system effects Acute and chronic toxicity from inhalation exposures	3	Used in consumer products Present in biomonitoring, surface water, ambient air, soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Industrial	Not yet initiated	Category
22	Creosotes	Added 2012	Probable human carcinogen	3	Widely used in consumer products Present in groundwater, soil High reported releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Industrial	Not yet initiated	8001-58-9
23	Cyanide Compounds (Limited to dissociable compounds)	Added 2012	Neurotoxicity Reproductive toxicity Central nervous system effects	3	Widely used in consumer products Present in drinking water, surface water, and soil High reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	Category

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
24	*Decabromodiphenyl ethers (DecaBDE)*	*Added 2014*	*Developmental toxicity* *Aquatic toxicity*	*3*	*Has been widely used in textiles, plastics and polyurethane foam as flame retardants* *Articles which were often treated with PBDEs include textiles such as carpets and upholstery fabric; cushions; plastics used as components in electrical appliances, devices, and equipment in consumer, commercial, and industrial use; and building and construction materials*	*3*	*High environmental persistence* *High bioaccumulation potential*	*3*	*Consumer* *Commercial* *Industrial*	*Not yet initiated*	*1163-19-5*
25	*Dibutyl phthalate (DBP) (1,2-Benzene-dicarboxylic acid, 1,2-dibutyl ester)*	*Added 2014*	*Chronic aquatic toxicity*	*3*	*Used in cosmetics, medical supplies, textiles, propellant, food packaging, dental material, and paper* *Used in the manufacture of plastics, paints, wood varnishes, and lacquers*	*3*	*Low environmental persistence* *Low bioaccumulation potential*	*1*	*Industrial* *Commercial* *Consumer*	*Not yet initiated*	*84-74-2*

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
26	o-Dichlorobenzene	Added 2012	Chronic toxicity	2	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air and groundwater Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Dispersive Industrial	Not yet initiated	95-50-1
27	p-Dichlorobenzene	Added 2012	Possible human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, ambient air, surface water, groundwater, soil Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	106-46-7
28	*3,3'-Dichlorobenzidine*	*Added 2014*	*Probable human carcinogen*	*3*	*Used in the production of dyes*	*2*	*Moderate environmental persistence* *Low bioaccumulation potential*	*2*	*Industrial*	*Not yet initiated*	*91-94-1*
29	3,3'-Dichlorobenzidine dihydrochloride	Added 2012	Probable human carcinogen	3	Used in consumer products Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	612-83-9

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
30	1,1-Dichloroethane	Added 2012	Mutagenicity	2	Used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater, soil Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	75-34-3
31	1,2-Dichloroethane	Added 2012	Possible human carcinogen	3	Used in commercial/industrial products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	107-06-2
32	trans-1,2-Dichloroethylene	Added 2012	Chronic toxicity	2	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater, soil	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	156-60-5

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
33	1,2-Dichloropropane	Added 2012	Acute mammalian toxicity	2	Used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	78-87-5
34	*Dicyclohexyl phthalate*	*Added 2014*	*Acute and chronic aquatic toxicity*	*3**	*Plasticizer; heat sealer for cellulose; heat sealer for paper finishes (labels, pharmaceutical labels, price labels)*	*3*	*Low environmental persistence* *Low bioaccumulation potential*	*1*	*Consumer* *Industrial*	*Not yet initiated*	*84-61-7*
35	*Di-ethylhexyl phthalate (DEHP) (1,2-Benzene-dicarboxylic acid, 1,2-bis(2-ethylhexyl) ester)*	*Added 2014*	*Chronic aquatic toxicity*	*3*	*Widely used in medical devices, such as intravenous tubing and blood bags* *Widely used in consumer products and construction-related products*	*3*	*Low environmental persistence* *Low bioaccumulation potential*	*1*	*Industrial* *Commercial* *Consumer*	*Not yet initiated*	*117-81-7*

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
36	*Di-isobutyl phthalate (DIBP) (1,2-Benzene-dicarboxylic acid, 1,2-bis-(2methylpropyl) ester)*	*Added 2014*	*Reproductive toxicity*	*1*	*Specialty plasticizer often combined with other phthalates Used in printing inks Used in nitrocellulose, cellulose ether, and polyacrylate and polyacetate dispersions*	*2*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Industrial Commercial Consumer*	*Not yet initiated*	*84-69-5*
37	*Di-isodecyl phthalate (DIDP) (1,2-Benzene-dicarboxylic acid, 1,2-diisodecyl ester)*	*Added 2014*	*Developmental toxicity*	*3*	*Used in cosmetics, medical supplies, textiles, propellant, food packaging, dental material, and paper Used in the manufacture of plastics, paints, wood varnishes, and lacquers*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Industrial Commercial Consumer*	*Not yet initiated*	*26761-40-0*
38	*Di-isononyl phthalate (DINP) (1,2-Benzene-dicarboxylic acid, 1,2-diisononyl ester)*	*Added 2014*	*Developmental toxicity*	*2*	*Commonly used as plasticizer in poly(vinyl chloride) applications*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Industrial Commercial Consumer*	*Not yet initiated*	*28553-12-0*
39	1,2-Dimethoxyethane (Monoglyme)	Added 2012	Reproductive toxicity Developmental toxicity Chronic toxicity	3	Widely used in consumer products Estimated to have high releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	110-71-4

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
40	*2-Dimethylaminoethanol*	*Added 2014*	*Acute toxicity*	*3*	*Intermediate in the synthesis of dyestuffs, textile, auxiliaries, pharmaceuticals and corrosion inhibitors, emulsifiers in paints and coatings Some uses in adhesives and sealants*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Industrial*	*Not yet initiated*	*108-01-0*
41	*Di-n-octyl phthalate (DnOP) (1,2-Benzene-dicarboxylic acid, 1,2-dioctyl ester)*	*Added 2014*	*Reproductive toxicity*	*2*	*Commonly used as plasticizer in poly(vinyl chloride) applications*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Industrial Commercial Consumer*	*Not yet initiated*	*117-84-0*
42	1,4-Dioxane	Added 2012	Possible human carcinogen	3	Widely used in consumer products Present in groundwater, ambient air and indoor environments High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Dispersive Industrial	Initiated 2014	123-91-1
43	Ethanone, 1-(1,2,3,4,5,6,7,8-octahydro-2,3,5,5-tetramethyl-2-naphthalenyl)-	Added 2012	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Industrial	Not yet initiated	54464-59-4
44	Ethanone, 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthalenyl)-	Added 2012	Aquatic toxicity	1*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Industrial	Not yet initiated	54464-57-2

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
45	Ethanone, 1-(1,2,3,4,6,7,8,8a-octahydro- 2,3,8,8-tetramethyl-2-naphthalenyl)-	Added 2012	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	Not yet initiated	68155-67-9
46	Ethanone, 1-(1,2,3,5,6,7,8,8a-octahydro- 2,3,8,8-tetramethyl-2-naphthalenyl)-	Added 2012	Aquatic toxicity	3*	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	Not yet initiated	68155-66-8
47	Ethylbenzene	Added 2012	Possible human carcinogen	3	Used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	100-41-4
48	Ethylene dibromide	Added 2012	Probable human carcinogen	3	Used in commercial/industrial products Present in drinking water, indoor environments, surface water, ambient air, groundwater, soil Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	106-93-4

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
49	bis(2-Ethylhexyl) adipate	Added 2012	Possible human carcinogen	3	Widely used in consumer products Present in drinking water, and indoor environments Estimated to have high releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	103-23-1
50	2-Ethylhexyl 2,3,4,5-tetrabromobenzoate (TBB)	Added 2012	Developmental toxicity Acute and chronic aquatic toxicity	2	Used in consumer products Present in indoor environments and soil	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	Initiated 2013	183658-27-7
51	bis(2-Ethylhexyl) - 3,4,5,6-tetrabromophthalate (TBPH)	Added 2012	Developmental toxicity Acute and chronic aquatic toxicity	2	Used in consumer products Present in indoor environments Estimated to have moderate releases to the environment	3	Moderate environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	Initiated 2013	26040-51-7
52	Formaldehyde	Added 2012	Known human carcinogen	3	Used in consumer products Present in indoor environments, drinking water, ambient air, and groundwater High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	50-00-0

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
53	*2,5-Furandione*	*Added 2014*	*Acute and chronic aquatic toxicity*	*3**	*Chemical intermediate for thousands of substances including lubricating oil additives, personal care products, adhesives, floor polishes, water treatment chemicals, detergents, paper sizing, epoxy curing agents, and leather treatment*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Industrial*	*Not yet initiated*	*108-31-6*
54	*Hexabromocyclododecane (HBCD)*	*Added 2014*	*Acute aquatic toxcity*	*3**	*Flame retardant in extruded polystyrene foam, textiles, and elctrical and electronic appliances*	*3*	*High environmental persistence High bioaccumulation potential*	*3*	*Consumer*	*Initiated 2013*	*3194-55-6*
55	Hexachlorobutadiene	Added 2012	Possible human carcinogen	3	Present in indoor environments, surface water, ambient air, groundwater, soil Relatively small reported releases to the environment	2	High environmental persistence High bioaccumulation potential	3	Industrial	Not yet initiated	87-68-3
56	1-Hexadecanol	Added 2012	Chronic toxicity	2	Widely used in consumer products Present in surface water, ambient air, and soil Estimated to have high releases to the environment	3	Low environmental persistence Moderate bioaccumulation potential	2	Consumer Dispersive Industrial	Not yet initiated	36653-82-4

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
57	**1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran (HHCB)**	**Added 2012**	**Developmental toxicity**	**2**	**Widely used in consumer products Present in biomonitoring Estimated to have high releases to the environment**	**3**	**Moderate environmental persistence Moderate bioaccumulation potential**	**2**	**Consumer Dispersive**	**Final assessment complete August 2014**	**1222-05-5**
58	*2-Hydroxy-4-(octyloxy) benzophenone*	*Added 2014*	*Acute and chronic aquatic toxicity*	*3**	*UV stablizer for polymers; used in rubber and plastic products Numerous food packaging uses (especially as a stablizer for petroleum wax)*	*3*	*Low environmental persistence Low bioaccumulation potential*	*1*	*Consumer Commercial*	*Not yet initiated*	*1843-05-6*
59	Lead & Lead Compounds	Added 2012	Neurotoxicity Developmental toxicity Reproductive toxicity	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	Not yet initiated	Category
60	Long-chain chlorinated paraffins (C18-20)	Added 2012	Chronic toxicity to target organs including the liver, kidneys and thyroid Aquatic toxicity	2	Present in biomonitoring, surface water, and soil Used in commercial/ industrial products	2	High environmental persistence High bioaccumulation potential	3	Industrial Dispersive	Initiated 2012	Category

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
61	Medium-chain chlorinated paraffins (C14-17)	Added 2012	Chronic toxicity to target organs including the liver, kidneys and thyroid Aquatic toxicity	2	Used in consumer products Estimated to have high releases to the environment	2	High environmental persistence High bioaccumulation potential	3	Consumer Dispersive Industrial	Initiated 2012	Category
62	**Methylene chloride**	**Added 2012**	**Probable human carcinogen**	**3**	**Widely used in consumer products** **Present in drinking water, indoor environments, ambient air, groundwater, and soil** **High reported**	**3**	**Low environmental persistence** **Low bioaccumulation potential**	**1**	**Consumer** **Industrial**	**Final assessment complete August 2014. Pursuing risk reduction**	**75-09-2**
63	4,4'-Methylene bis(2-chloroaniline)	Added 2012	Known human carcinogen	3	Widely used in consumer products Present only in ambient air Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	101-14-4
64	*4,4'-(1-Methylethylidene)bis[2, 6-dibromophenol] (TBBPA)*	*Added 2014*	*Acute aquatic toxcity*	*2**	*Flame retardant in epoxy resin circuit boards and in electronic enclosures*	*3*	*High environmental persistence* *Low bioaccumulation potential*	*2*	*Consumer*	*Not yet initiated*	*79-94-7*
65	N-Methyl-2-pyrrolidone (NMP)	Added 2012	Reproductive toxicity	3	Widely used in consumer products Present in drikning water and indoor environments High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Initiated 2012	872-50-4

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
66	*Molybdenum and Molybdenum Compounds*	*Added 2014*	*Chronic toxicity*	*1*	*Alloying agent in cast iron, steel, and super alloys to increase hardenability, strength, toughness, and corrosion resistance Used for electrical lead-in (in halogen lamps and electric furnaces) and wear-resistant coatings for machine & engine parts Also used in glass and nuclear energy industries*	*3*	*High environmental persistence Moderate bioaccumulation potential*	*3*	*Consumer Industrial*	*Not yet initiated*	*Category*
67	Naphthalene	Added 2012	Possible human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	91-20-3
68	2-Naphthalenecarboxylic acid, 4-[(4-chloro-5-methyl-2-sulfophenyl) azo]-3-hydroxy-, calcium salt (1:1) (Pigment Red 52)	Added 2012	Aquatic toxicity	3*	Widely used in consumer products Estimated to have moderate releases to the environment	2	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	17852-99-2

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
69	Nickel & Nickel Compounds	Added 2012	Known human carcinogens Acute and chronic toxicity from inhalation exposures	3	Used in consumer products Present in ambient air High reported releases to the environment	2	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	Category
70	N-Nitroso-diphenylamine	Added 2012	Probable human carcinogen	3	Used in consumer products Present in surface water, groundwater, soil Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	86-30-6
71	*Nonylphenol and Nonylphenol Ethoxylates (NP/NPEs)*	*Added 2014*	*Reproductive toxicity* *Developmental toxicity* *Aquatic toxicity*	*3*	*In industrial detergents as well as other cleaners, degreasers (some for consumer use), and dry cleaning* *Industrial uses include petroleum dispersants, emulsifiers, wetting agents, adhesives, paper and textile processing formulations, prewash spotters, metalworking fluids, some paints and coatings, and dust control agents*	*3*	*Moderate environmental persistence* *Moderate bioaccumulation potential*	*2*	*Commercial* *Industrial*	*Not yet initiated*	*Category*

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
72	Octamethylcyclotetra-siloxane (D4)	Added 2012	Reproductive toxicity	2	Used in consumer products Present in biomonitoring, drinking water, indoor environments, and surface water Estimated to have high releases to the environment	3	Moderate environmental persistence High bioaccumulation potential	3	Consumer Dispersive Industrial	Initiated 2012	556-67-2
73	4-tert-Octylphenol (4-(1,1,3,3-Tetramethylbutyl)-phenol)	Added 2012	Aquatic toxicity	3*	Used in consumer products Present in biomonitoring and drinking water Estimated to have moderate releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	2	Consumer Industrial	Not yet initiated	140-66-9
74	p,p'-Oxybis(benzenesulfonyl hydrazide)	Added 2012	Reproductive toxicity Mutagenicity	3	Used in consumer products Estimated to have moderate releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer	Not yet initiated	80-51-3
75	*Pentachlorothio-phenol*	*Added 2014*	*Acute and chronic toxicity*	*3*	*A mercaptan (sulfur) cross-linking agent that makes rubber more pliable*	*1*	*High environmental persistence* *High bioaccumulation potential*	*3*	*Industrial*	*Not yet initiated*	*133-49-3*
76	*Phenol, isopropylated, phosphate (3:1) (iPTPP)*	*Added 2014*	*Neurotoxicity* *Aquatic toxicity*	*3*	*Widely used as a flame retardant*	*3*	*High environmental persistence* *High bioaccumulation potential*	*3*	*Consumer* *Industrial*	*Not yet initiated*	*68937-41-7*

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
77	*Phosphoric acid, triphenyl ester (TPP)*	*Added 2014*	*Acute and chronic aquatic toxicity*	*3**	*Widely used as a flame retardant in polyurethane foam, PVC, printed wiring boards, children's products Applications in polymers in high-impact polystyrenes, epoxy resins, and adhesives (minor use)*	*3*	*Moderate environmental persistence Moderate bioaccumulation potential*	*2*	*Consumer Industrial*	*Not yet initiated*	*115-86-6*
78	Phthalic anhydride	Added 2012	Respiratory sensitizer	3	Widely used in consumer products Present in groundwater and ambient air High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	85-44-9
79	Styrene	Added 2012	Possible human carcinogen Central nervous system effects	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, and groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	100-42-5

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
80	Tetrachloroethylene (PERC)	Added 2012	Probable human carcinogen	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, ambient air, groundwater, soil High reported releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Dispersive Industrial	Not yet initiated	127-18-4
81	Tribromomethane (Bromoform)	Added 2012	Probable human carcinogen	3	Used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, and groundwater Moderate reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	75-25-2
82	1,1,2-Trichloroethane	Added 2012	Possible human carcinogen	3	Widely used consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater, and soil Moderate reported releases to the environment	2	High environmental persistence Low bioaccumulation potential	2	Dispersive	Not yet initiated	79-00-5

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
83	**Trichloroethylene (TCE)**	**Added 2012**	**Probable human carcinogen**	**3**	**Widely used in consumer products Present in drinking water, indoor environments, surface water, ambient air, groundwater, and soil**	**3**	**High environmental persistence Low bioaccumulation potential**	**2**	**Consumer Industrial**	**Final assessment complete June 2014. Pursuing risk reduction**	**79-01-6**
84	Triglycidyl isocyanurate	Added 2012	Reproductive toxicity Mutagenicity Acute toxicity from inhalation exposures	3	Widely used in consumer products Estimated to have high releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	2451-62-9
85	Tris(2-chloroethyl) phosphate (TCEP)	Added 2012	Mutagenicity Limited evidence of carcinogenicity	2	Widely used in consumer products Present in drinking water, and indoor environments Estimated to have moderate releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Initiated 2013	115-96-8
86	2,4,6-Tris(-tert-butyl)phenol	Added 2012	Chronic toxicity and liver effects	2	Widely used in consumer products Present in indoor environments Estimated to have moderate releases to the environment	2	Moderate environmental persistence High bioaccumulation potential	3	Consumer Industrial	Not yet initiated	732-26-3

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
87	Vinyl chloride	Added 2012	Known human carcinogen	3	Used in consumer products Present in drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Industrial	Not yet initiated	75-01-4
88	m-Xylene	Added 2012	Reproductive toxicity Developmental toxicity	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	108-38-3
89	o-Xylene	Added 2012	Chronic toxicity	3	Used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	95-47-6

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
90	p-Xylene	Added 2012	Reproductive toxicity	3	Widely used in consumer products Present in biomonitoring, drinking water, surface water, ambient air, groundwater, soil High reported releases to the environment	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	Not yet initiated	106-42-3

TSCA Work Plan Chemicals for Assessment: 2014 Update - Chemicals Removed or Consolidated

	Chemical Name	When was the chemical added and removed?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status or Other Action	CASRN
1	Benz[a]anthracene	Added 2012 Removed 2014	Probable human carcinogen	3	Present in biomonitoring, indoor environments, surface water, ambient air, groundwater, and soil	2	High environmental persistence Moderate bioaccumulation potential	3	Dispersive Industrial	No assessment	56-55-3
2	p-Chloro-o-toluidine	Added 2012 Removed 2014	Probable human carcinogen	3	Present in biomonitoring, surface water, and soil	2	Moderate environmental persistence Low bioaccumulation potential	2	Industrial	No assessment	95-69-2
3	Dibenz(a,h)anthracene	Added 2012 Removed 2014	Probable human carcinogen	3	Present in indoor environments, surface water, ambient air, groundwater, and soil	2	Moderate environmental persistence Moderate bioaccumulation potential	2	Dispersive	No assessment	53-70-3

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
4	Dibromochloromethane	Added 2012 Removed 2014	Possible human carcinogen	3	Present in biomonitoring, surface water, ambient air, and soil	2	Moderate environmental persistence Low bioaccumulation potential	2	Industrial	No assessment	124-48-1
5	Dichloroacetic acid	Added 2012 Removed 2014	Possible human carcinogen	3	Used in consumer products Present in drinking water	3	Low environmental persistence Low bioaccumulation potential	1	Consumer Industrial	No assessment	79-43-6
6	Hexabromobiphenyl	Added 2012 Removed 2014	Possible human carcinogen	3	Used in consumer products Present in ambient air and soil	2	High environmental persistence High bioaccumulation potential	3	Industrial	No assessment	36355-01-8
7	Hexachlorocyclohexane	Added 2012 Removed 2014	Possible human carcinogen	3	Present in biomonitoring and surface water	2	High environmental persistence Moderate bioaccumulation potential	3	Industrial	No assessment	608-73-1
8	Mercury & Mercury Compounds	Added 2012 Removed 2014	Neurotoxicity Developmental toxicity Chronic nervous system and hepatic effects	3	Widely used in consumer products Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, soil High reported releases to the environment	3	High environmental persistence Moderate bioaccumulation potential	3	Consumer Industrial	No assessment	Category

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
9	N-Nitrosodiethylamine	Added 2012 Removed 2014	Probable human carcinogen	3	Present in biomonitoring, surface water, and ambient air, groundwater, and soil Relatively small reported releases to the environment	2	Moderate environmental persistence Low bioaccumulation potential	2	Industrial	No assessment	55-18-5
10	N-Nitrosodimethylamine	Added 2012 Removed 2014	Probable human carcinogen	3	Widely used in consumer products Present in drinking water, surface water, ambient air, groundwater, and soil	3	Moderate environmental persistence Low bioaccumulation potential	2	Consumer Dispersive Industrial	No assessment	62-75-9
11	Pentabromophenol	Added 2012 Removed 2014	Acute toxicity	3	Used in consumer products Present in surface water and soil	2	High environmental persistence Low bioaccumulation potential	2	Industrial	No assessment	608-71-9
12	Polychlorinated naphthalenes	Added 2012 Removed 2014	Acute dermal toxicity Chronic liver effects	1	Widely used in consumer products Present in biomonitoring	3	High environmental persistence High bioaccumulation potential	3	Industrial	No assessment	Category
13	Quartz (Respirable forms only)	Added 2012 Removed 2014	Probable human carcinogen	3	Widely used in consumer products Present in drinking water Estimated to have high releases to the environment	3	High environmental persistence Low bioaccumulation potential	2	Consumer Industrial	No assessment	14808-60-7

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.

	Chemical Name	When was the chemical added?	Hazard Criteria Met	Hazard Score	Exposure Criteria Met	Exposure Score	Persistence & Bioaccumulation Criteria Met	Persistence & Bioaccumulation Score	Use	Risk Assessment Status and Other Actions	CASRN
14	1,2,4,5-Tetrachlorobenzene	Added 2012 Removed 2014	Chronic toxicity	3	Present in ground water and soil	1	Moderate environmental persistence High bioaccumulation potential	3	Industrial	No assessment	95-94-3
15	Tris(2,3-dibromopropyl) phosphate *(TBP)*	Added 2012 Removed 2014	Probable human carcinogen	3	Widely used in consumer products Relatively small reported releases to the environment	0	Moderate environmental persistence Low bioaccumulation potential	2	Consumer	No assessment	126-72-7
16	Benzo[a]pyrene	Added 2012 Consolidated 2014	Known human carcinogen	3	Present in biomonitoring, drinking water, indoor environments, surface water, ambient air, groundwater, and soil	2	High environmental persistence Moderate bioaccumulation potential	3	Dispersive Industrial	No assessment	50-32-8

Notes:

An asterisk (*) in the Hazard Score column indicates the score is based solely on environmental toxicity.

Chemicals in italics were added in 2014.

Chemicals in bold have final risk assessments.