



National Tribal Toxics Council

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March 17, 2017

Maria J. Doa, PhD., Director
Chemical Control Division
USEPA Office of Pollution Prevention and Toxics
1200 Pennsylvania Avenue, NW
Mail Code: 7405M
Washington, DC 20460

RE: Scoping for the First 10 Work Plan Chemical Substances Designated for Risk
Evaluations pursuant to TSCA, Docket ID: EPA-HQ-OPPT-2016-0718-0001*

Dear Ms. Doa,

The National Tribal Toxics Council (NTTC, or Council) appreciates the opportunity to comment on the first ten work plan chemical substances which were designated for risk evaluations pursuant to the amendments to the Toxic Substances Control Act as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act (TSCA). The NTTC, as an EPA Tribal Partnership Group (TPG), is supported by the EPA Office of Pollution Prevention and Toxics. The Council is focused on providing Tribes with an opportunity for greater input on issues related to toxic chemicals and pollution prevention.

The Council understands that this scoping period is the initiation of the risk evaluation process for each of the ten chemical substances, that the purpose of scoping is to gather information about uses of the ten substances for the final goal of the risk evaluation process. TSCA now requires evaluation of chemicals in commerce to determine if they:

“...present an unreasonable risk of injury to health or the environment, without consideration of costs or other non-risk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator, under the conditions of use.” [TSCA, Section 6(b)(4)]
TSCA defines a “potentially exposed or susceptible subpopulation,” as “a group of individuals within the general population identified by the Administrator who, due to either greater susceptibility or greater exposure, may be at greater risk than the general population of adverse health effects from exposure to a chemical substance or mixture,

such as infants, children, pregnant women, workers, or the elderly. [TSCA, 15 USC 53 § 2602. Definitions, June 22, 2016]

Tribes are a unique potentially exposed subpopulation based on higher consumption of “wild foods”, higher environmental exposures due to increased and often unique activities associated with environmental media, often live and conduct activities with aging infrastructure and housing that may provide more exposure routes. Tribes are also susceptible due to a number of health disparities, both societal and clinical, that exist as well. These considerations have not been taken into account in previous risk assessments across EPA programs or in EPA’s TSCA risks assessments of individual chemicals prior to determining regulatory action. Tribes are also a subpopulation with whom the U.S. Government has a historical, well-defined, and unique legal relationship, unlike any other subpopulation examples in the definition quoted above.

As OPPT works through the risk evaluation process, the NTTC refers you to the previously provided document, “Understanding Tribal Exposures to Toxics” which was presented to the EPA Administrator on June 22, 2015. Tribal exposure must be considered and quantified across all media programs at the beginning of the risk assessment process by engaging tribes in the problem formulation and initial assessments. This also requires EPA technical assistance and funding for tribes to generate the data needed. (“NTTC Letter to EPA Administrator, June 22, 2015.”) This NTTC tribal exposures report provides information to enable readers to recognize situations that require an understanding of how natural resources are used by tribes for food, medicine, cultural and traditional practices, and/or recreation, what is referred to as tribal lifeways. This is important for three reasons:

- (1) Tribes may be exposed to higher doses of contaminants in the environment than the general population because of their physical interaction with the environment; and because some of their customary and traditional ceremonial and subsistence foods (which are not store-bought, urban foods) carry higher toxic burdens and/or the higher consumption of some of these foods results in higher burdens, which should be utilized in dose calculations.
- (2) Tribes may be exposed to higher doses of contaminants in the natural environment or in foods and resources derived from the natural environment due to longer durations, higher frequencies, or greater breadth of potentially exposed activities than the general population.
- (3) Impairment of natural resource uses affects tribal social and cultural well-being beyond nutrition and physical health. Poor well-being of individuals and their communities in turn can impact clinical health.

This understanding may help EPA and other regulators in the risk evaluation process to determine whether those uses are adequately protected under implementation of TSCA, and may help regulators develop guidelines for evaluating risks and impacts to tribal well-being.

The standard assessment protocols currently in use must be expanded to meet the amended TSCA goals of fully considering susceptible subpopulations, to better consider unique regional and local conditions and exposures rather than taking a central tendency perspective. In particular, the Council presents the following concerns and recommendations regarding the below-named chemical substances.

1,4-Dioxane

The U.S. Department of Health and Human Services (DHHS) considers 1,4-dioxane as reasonably anticipated to be a human carcinogen. 1,4-dioxane breaks down fairly readily in air; however, when introduced into a water source the chemical becomes very stable and does not break down over time. It is an accidental byproduct of the ethoxylation process in cosmetics manufacturing. As such, it often appears as a chemical contaminant in cosmetics and personal care products such as deodorants, shampoos, toothpastes and mouthwashes, detergents, bath products, and also in some pharmaceuticals. Some of these may contain 1,4-dioxane in amounts greater than what the Food & Drug Administration (FDA) recommends for other products. There are no studies of children exposed to 1,4-dioxane. Scientists do not know whether exposure of pregnant women to 1,4-dioxane can harm the unborn child.ⁱ Given the number of customary and traditional activities in and around water, and the use of untreated surface water by the bulk of members in some tribes, these aspects should be evaluated for tribes and the general public.

Recommendation regarding 1,4-Dioxane

When EPA released a problem formulation and initial assessment for 1,4-dioxane on April 20, 2015, one of the three conclusions was that “EPA/OPPT will further assess risks to workers and consumers exposed to 1,4-Dioxane through certain uses. EPA plans to review and evaluate the results of previous exposure assessments and health benchmarks for this chemical. As a result, EPA/OPPT will develop margins of exposure and cancer risk estimates to evaluate the potential risks from worker and consumer exposure to 1,4-Dioxane.”ⁱⁱ With its potential abundance and persistence in water, with sources including at least 31 of the 1,689 current or former National Priority List (NPL) sites evaluated as of 2012, and furthermore, with no data evaluating the risk of exposure for children and unborn children, 1,4-dioxane has the potential to have a disproportionate impact on tribes. Last, with additional potential exposures to this chemical substance in multiple forms of consumer products, whether an unintended byproduct or not, there is the potential of cumulative risk of exposure which EPA must evaluate.

1-Bromopropane

The effects of 1-bromopropane (1-BP) range from irritation to eyes, mucous membranes, upper airways and skin, to damage to the nervous system causing neurological effects including confusion, difficulty walking and loss of feeling in arms and legs.ⁱⁱⁱ These effects may continue among affected persons even after exposure to 1-BP has ended.^{iv} Based on the findings in animals, the Department of Health and Human Services has classified 1-bromopropane as “reasonably anticipated to be a human carcinogen”.^v 1-Bromopropane that enters surface water is slowly broken down, with most of the chemical evaporating into the air. When released to soil, 1-BP can enter surface and groundwater. Fortunately for tribal lifeways, it is not likely to concentrate in the food chain. While there is no federal OSHA exposure standard for 1-BP, the California Occupational Safety and Health Administration (Cal-OSHA) and the American Conference of Governmental Industrial Hygienists (ACGIH) have set exposure limits for workers^{vi}. For women of childbearing age, short-term exposure to products containing 1-BP, like spray adhesives, aerosol spot cleaners and aerosol cleaners/degreasers, could cause adverse developmental and reproductive effects. Other non-cancer and cancer health risks were identified for workers with repeated and chronic exposures, including neurotoxicity, kidney, liver, reproductive toxicity, and lung cancer. EPA recommends that people minimize exposure to 1-BP by using gloves, eye protection, and only using the product outside or only in extremely well-ventilated areas.

Recommendation regarding 1-Bromopropane

This a high risk chemical similar to TCE which NTTC believes should not be allowed in on-the-shelf products because of the ease in which it volatilizes and the hazardous health effects from 1-BP exposure. Volatilization is an important human exposure route, despite EPA noting in its draft assessment that 1-BP has a low hazard profile for ecological receptors and low persistence and bioaccumulation if released into aquatic or terrestrial environments.

Asbestos

The risks from asbestos are well-known, well-documented, and its use is highly regulated by both EPA and OSHA.

Recommendation regarding Asbestos

There is no safe exposure amount to asbestos fiber. Asbestos must be restricted from commercial applications as much as possible, and further, it must be completely banned in products available to the public, i.e., anyone not certified to handle asbestos in the manners required by OSHA. These restrictions along with expansion of abatement programs to remove it from all past applications and products would substantially remove the threatened health risk for most tribal communities.

Chlorinated Solvents: Carbon Tetrachloride, Methylene Chloride, Trichloroethylene, Tetrachloroethylene

Carbon tetrachloride also known as (aka) tetrachloromethane (TCM), methylene chloride aka dichloromethane (DCM), trichloroethylene (TCE), and tetrachloroethylene aka perchloroethylene (PCE) are all chlorinated solvents. As such, these chemical substances are easily transported through multiple media: soil, groundwater and air. All have high volatility and are vapor intrusive when used in large volume, thus spills can generate vapor over years depending on the environmental factors involved. Three of these solvents, TCM, TCE and PCE, increase the risk of Parkinson's' disease by six times, a statistically significant association, and, the onset of the disease occurs up to 40 years after exposure.^{vii} All four can enter the body by any pathway, ingestion, absorption, or inhalation. It then can potentially impact every organ in the body. All four are environmentally pervasive. Methylene chloride, used in a number of household products, evaporates readily, risking inhalation by children. Also, since the vapor of methylene chloride is heavier than air, it will tend to stay close to the ground. Children, being shorter, would likely breathe in larger amounts than adults during accidental exposure and certainly breathe in higher amounts relative to body mass.

Volumes of information is available on TCE. The mere fact that the OSHA requirements for it are external air respirators indicates that it is a very high risk of inhalation poisoning. Its value in commercial solvents is outweighed by its environmental impacts where there are over 900 super fund sites which list it as a chemical of concern in the cleanups. Once in the ground water TCE is very difficult and expensive to remove, leaving the water unusable.

Recommendation regarding Chlorinated Solvents

These are all significantly hazardous chemicals and especially for TCE, risk assessments by multiple offices of the EPA go back decades, all show these are dangerous. Of the four, TCM is the worst. These should be removed from any consumer product and limited or even phased out of occupational and industrial products.

Cyclic Aliphatic Bromide Cluster

The Cyclic Aliphatic Bromide Cluster aka hexabromocyclododecane (HBCD) is a phosphate ester flame retardant, and thus is persistent in soil and sediment, adsorbing strongly due to characteristics of phosphate esters--low water solubility and relatively high octanol/water partition coefficient, thus limiting the availability of these substances to microorganisms (Boethling and Cooper 1985; Muir 1984). Phosphate ester flame retardants have been found in sediment of lakes and rivers. Ingestion of food or water is the primary exposure pathway for humans to be exposed to phosphate ester flame retardants like HBCD. They are also found in the air from indoor air use and in outdoor air, likely due to their use as hydraulic fluid. ATSDR primarily looked at ingestion via food or water as the primary exposure pathway for humans. The availability in air and through food or water as an exposure pathway is important for tribal lifeways because water-based food such as fish form the majority of diets for tribal people. Traditional water sources, which are obtained direct from the source without treatment, may provide another exposure pathway. Young children are at an

increased exposure risk due to the potential for oral exposure via dissolution of phosphate esters from repeated sucking on treated materials (NRC 2000). Inhalation is also a potential route of exposure primarily in indoor air from PVC plasticizers, floor polishes, electronics, and textiles.^{viii}

Recommendation regarding Cyclic Aliphatic Bromide Cluster

HBCD, like all brominated chemicals, has been of rising interest around the world leading to the reduction and/or banning of its use in many countries. It is suggested that EPA follow the lead of Sweden and attempt to negotiate a voluntary ban of production. Otherwise, a use-ban should be put in place, severely restricting the use of HBCD in commerce. At its sixth meeting in October 2010, the United Nations Environmental Programme's Persistent Organic Pollutants Review Committee decided that, HBCD "is likely, as a result of its long range environmental transport, to lead to significant adverse human health and environmental effects such that global action is warranted".^{ix} NTTC suggests that EPA follows the lead of Sweden and attempt to get a voluntary ban of production, or at least implement a use-ban that will severely restrict its use in commerce.

N-Methylpyrrolidone

N-Methylpyrrolidone (NMP) is a polar water-miscible organic solvent, moving through the environment rapidly. NMP is used in the petrochemical and the microelectronics fabrication industries. It is also used in the manufacture of various compounds, including pigments, cosmetics, drugs, insecticides, herbicides, and fungicides. An increasing use of NMP is as a substitute for chlorinated hydrocarbons. NMP may enter the environment as emissions to the atmosphere, as the substance is volatile and widely used as a solvent, or it may be released to water as a component of municipal and industrial wastewaters. The substance is mobile in soil, and leaching from landfills is thus a possible route of contamination of groundwater.^x

Recommendation regarding N-Methylpyrrolidone

The World Health Organization has studied this chemical and indicates no identified safe level of this chemical in products and is investigating a ban on it. With its reproductive, maternal and developmental toxicities, NMP should be regulated out of consumer products due to the fetal effects and the availability of a safer alternative. It is currently under consideration for such a ban by the World Health Organization. Dimethyl sulfoxide (DMSO) is equally as effective as, and considerably safer to use, than NMP. Regardless of exposure type, DMSO has favorable safety data to support its use as a replacement for NMP, which has significant risk for pregnant females and fetuses.

The NTTC again thanks you for the opportunity to comment on the scoping for the risk evaluation of the first ten work plan chemicals under the amended TSCA. We look forward to continuing our work with OPPT and to support assessment of impacts to subsistence ("wild foods") based populations and

encouraging innovation that is safer and getting those chemicals into the market. You may respond to me at 503-731-1259 or bard@critfc.org, or to our NTTC Coordinator, Kristin K'ait, at 907-444-5616 or kkeit@zendergroup.org.

Sincerely,



Dianne C. Barton, Chair
National Tribal Toxics Council

CC: Irina Myers, Liaison Branch, OPPT

***Docket Numbers for 10 Work Plan Chemical Substances**

Chemical Substance	Docket Number
1,4-Dioxane	EPA-HQ-OPPT-2016-0723
1-Bromopropane	EPA-HQ-OPPT-2016-0741
Asbestos	EPA-HQ-OPPT-2016-0736
Carbon Tetrachloride	EPA-HQ-OPPT-2016-0733
Cyclic Aliphatic Bromide Cluster (HBCD)	EPA-HQ-OPPT-2016-0735
Methylene Chloride	EPA-HQ-OPPT-2016-0742
N-Methylpyrrolidone (NMP)	EPA-HQ-OPPT-2016-0743
Pigment Violet 29 (Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline- 1,3,8,10(2H,9H)-tetrone)	EPA-HQ-OPPT-2016-0725
Trichloroethylene (TCE)	EPA-HQ-OPPT-2016-0737
Tetrachloroethylene (also known as perchloroethylene)	EPA-HQ-OPPT-2016-0732

ⁱ 1,4-Dioxane, ToxFAQs and Toxicological Profile for 1,4-Dioxane, Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, April 2012.

ⁱⁱ Assessments for TSCA Work Plan Chemicals, Completed Problem Formulation and Initial Assessments, 1,4-Dioxane, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/assessments-tsca-work-plan-chemicals>

ⁱⁱⁱ Ichihara G, Kitoh J, Li W, Ding X, Ichihara S, Takeuchi Y [2012]. Neurotoxicity of 1-bromopropane: evidence from animal experiments and human studies. J Ad Res 3(2):91-98. https://www.osha.gov/dts/hazardalerts/1bromopropane_hazard_alert.html

^{iv} Majersik JJ, Caravati EM, Steffens JD [2007]. Severe neurotoxicity associated with exposure to the solvent 1-bromopropane (n-propyl bromide). Clin Toxicol 45(3):270-276. https://www.osha.gov/dts/hazardalerts/1bromopropane_hazard_alert.html

^v 1-Bromopropane ToxFAQs and 2016 Toxicological Profile for 1-Bromopropane (Draft for Public Comment), Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, January 2016.

^{vi} OSHA – NIOSH Hazard Alert, https://www.osha.gov/dts/hazardalerts/1bromopropane_hazard_alert.html

^{vii} Goldman SM, Quinlan PJ, Ross GW, Marras C, Meng , Bhudhikanok GS, Comyns K, Korell M, Chade AR, Kasten M, Priestley B, Chou KL, Fernandez HH, Cambi F, Langston JW, Tanner CM. Solvent exposures and Parkinson disease risk in twins. *Annals of Neurology*, 2011.

^{viii} Toxicological Profile for Phosphate Ester Flame Retardants, ATSDR, September 2012.

^{ix} Report of the Persistent Organic Pollutants Review Committee on the work of its sixth meeting, United Nations Environment Programme, Stockholm Convention on Persistent Organic Pollutants Geneva, 11–15 October 2010

^x Concise International Chemical Assessment Document 35, N-Methyl-2-pyrrolidone, Dr. Bengt Åkesson, World Health Organization, 2001.