

Summary Document

Proposal to Add *para*-Phenylenediamine (PPD) Derivatives to the Candidate Chemicals List

Date: 2023-04-27

This summary document presents a high-level overview of a more detailed technical document that DTSC plans to release in the coming months to support this proposal.

WHAT ACTION IS DTSC CONSIDERING?

The Department of Toxic Substances Control (DTSC) proposes to add a class of chemicals known as *para*-phenylenediamine (PPD) derivatives to the [Candidate Chemicals \(CC\) List](#) under section 69502.2 of the Safer Consumer Products (SCP) regulations.

WHY IS DTSC CONSIDERING THIS ACTION?

PPD derivatives have recently raised significant global concern after mass die-offs of coho salmon were attributed to a transformation product of the tire ingredient known as 6PPD (N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine) (Tian et al. 2021). DTSC is adopting regulations to designate motor vehicle tires containing 6PPD as a Priority Product under its SCP regulatory framework. PPD and 6PPD are the only PPD derivatives (as defined by DTSC) on the CC List, but other PPD derivatives are similarly used in rubber products and could be used in place of 6PPD in tires. This action would ensure that tire manufacturers wishing to switch from 6PPD to another PPD derivative thoroughly evaluate the tradeoffs in an Alternatives Analysis. The reactivity of PPD derivatives makes these chemicals useful in a variety of industrial applications in addition to tires.

HOW DOES DTSC PROPOSE TO DEFINE PPD DERIVATIVES?

DTSC proposes to define the class as *para*-phenylenediamine (also known as PPD, PPDA, benzene-1,4-diamine, 1,4-diaminobenzene, and 1,4-phenylenediamine) and its derivatives with a molecular weight less than 1,000 daltons, with certain exceptions. The definition will be further detailed in the technical document.

WHAT POTENTIAL HAZARD TRAITS OR TOXICOLOGICAL AND ENVIRONMENTAL ENDPOINTS ARE THE BASIS FOR THIS PROPOSAL?

To add a chemical to the CC List, the SCP framework regulations require DTSC to determine that the chemical exhibits at least one of the hazard traits specified in chapter 54 of title 22 of the California Code of Regulations. Based on current evidence, DTSC has concluded that PPD derivatives can reasonably be expected to exhibit one or both of the following hazard traits:

- Dermatotoxicity
- Wildlife survival impairment

WHAT INFORMATION DEMONSTRATES POTENTIAL EXPOSURES TO PPD DERIVATIVES AS THE BASIS FOR THE PROPOSED LISTING?

Indicators of potential exposure to PPD derivatives include:

- Data regarding the production (manufacture) of PPD derivatives
- The presence of PPD derivatives in numerous consumer products
- Biomonitoring data
- Environmental monitoring data

WHAT NEW REGULATORY REQUIREMENTS WOULD BE CREATED IF DTSC ADDED PPD DERIVATIVES TO THE CANDIDATE CHEMICALS LIST?

None. Adding a chemical to the Candidate Chemicals List does not create any new regulatory obligations or regulated entities. The presence of a chemical on the Candidate Chemicals List allows DTSC to evaluate product-chemical combinations containing that chemical, potentially leading to Priority Product regulations. New regulatory requirements result only when DTSC identifies and lists a Priority Product under California Code of Regulations Title 22, Section 69503.5. Also, manufacturers of a consumer product regulated by SCP must thoroughly evaluate the impacts of a CC before choosing it as a replacement for a Chemical of Concern.

REFERENCES

Tian Z et al. (2021). A ubiquitous tire rubber–derived chemical induces acute mortality in coho salmon. *Science*. 371(6525):185–189. doi: 10.1126/science.abd6951.