

Alternatives Assessment Examples Review

Document Title: Bisphenol A Alternatives in Thermal Paper

Link to Document:

https://www.epa.gov/sites/production/files/2015-08/documents/bpa_final.pdf

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Purpose of the Report: This report evaluates developers that may be used in thermal paper. It applies the DfE alternative assessment framework and focuses on the hazard characteristics of chemical alternatives, providing information on the environmental and human health profiles of each chemical included.

Report Summary: This report summarizes the outcomes of the alternatives assessment regarding the potential environmental and human health hazards of BPA and alternatives in thermal paper. It describes intrinsic properties that include concerns associated with chemical structure, absorption potential, persistence, and bioaccumulation.

Performance, economic, and social considerations are also briefly addressed, along with interim risk management measures that may be relevant for alternatives associated with trade-offs.

Key Findings:

Product requirements: The report provides narrative information on BPA and its use as a developer in thermal paper. It briefly describes the thermal paper printing technology, the function of developer in the product system, and some performance characteristics of developers.

Identification of alternatives: The report documents how 19 alternatives are selected for assessment as potential functional substitutes based on conversations with technical experts and stakeholders. It also explains why other alternatives are not selected, as well as the criteria used.

Human health hazard: The report adopts a semi-quantitative, screening-level comparison of the potential human health and environmental impacts of BPA chemical alternatives. The evaluation is conducted according to the DfE alternatives assessment criteria for human health and ecological hazards.

Data gaps and uncertainty: The report clearly documents data gaps on human health hazards and environmental hazards, and strategies for interpreting and handling those gaps when making decisions in different scenarios.

Furthermore, it analyzes the uncertainties that result from estimation methods used to fill data gaps on physical/chemical properties, environmental fate, aquatic toxicity and human health endpoints when experimental data and measured data are not available. In addition, it evaluates and documents the adequacy and quality of the toxicological data identified in the literature review and criteria used for data quality evaluation.

Decision-making: The report provides a detailed discussion and presents trade-offs to consider when selecting thermal paper developers. It suggests that when chemical alternatives exhibit hazard trade-offs, it is necessary to gather additional information on exposure scenarios and the potential for control or mitigation of risks.