Analysis of Bisphenols and Phthalates in Mexico

Executive Summary

Name of Participating Organization: Casa Cem - Vías Verdes.
Author(s): Sofía Carlota Chávez Arce, Ana Belén Vázquez Vázquez

This executive summary presents an overview of the national situation regarding phthalates and bisphenols in Mexico, focusing on their trade, production, use, regulatory controls, research on their health impacts and existing actions for their phase-out. Phthalates such as DEHP, DBP, and DOP, and bisphenols, especially Bisphenol A (BPA), are widely used in plastics, coatings, inks, adhesives, and consumer products. These substances are recognized as endocrine-disrupting chemicals associated with reproductive disorders, developmental effects in children, metabolic diseases, and certain types of cancer. Available public information shows high domestic consumption of plastics and a strong dependence on imports, however, disaggregated national data on the production or specific trade of phthalates and bisphenols are limited or nonexistent.

The regulatory framework addressing these substances is fragmented. There is a standard limiting DEHP in drinking water, while another regulation still allows the use of BPA-based resins in internal can coatings. Mexico does not have an integrated regulatory framework that covers the use of these chemicals throughout the life cycle of plastics, consumer goods, or recycled materials. Transparency and traceability mechanisms for chemical additives in plastics are minimal.

Various national studies show detectable levels of phthalates and BPA in pregnant women, children and in the general population, their presence in water, food, dust, and other environmental matrices has also been identified, however important knowledge gaps still remain.

Mexico does not have national programs specifically aimed at phasing out phthalates or bisphenols. There are local initiatives to reduce single-use plastics, but these do not regulate toxic additives. The main challenges include the lack of data, regulatory fragmentation, limited industrial transparency, and increasing dependence on imported and recycled plastic materials.

Methods

The analysis of the national situation was developed through an internet review of publicly available information from various national and international sources. Government databases on industrial production and trade (Data México, ANIQ), scientific repositories, federal and state regulations, and epidemiological and environmental studies were reviewed. Scientific publications from Mexican cohorts were examined to identify evidence of human exposure to phthalates and bisphenols. Trade and production data were compared with global sources such as the UN COMTRADE to identify inconsistencies in reported volumes.

The regulatory analysis included a review of national laws, Mexican Official Standards (NOMs) and mandatory agreements. We found the waste law, food-contact materials and drinking-

water standards, and cosmetics mandatory agreements to mention phthalates and bisphenols controls. Given the limited transparency in industrial reporting of chemical substances, the absence of data on specific imports/exports of additives was also assessed.

Production and use in the country

Production, import, and export of plastics

Mexico has a significant plastics industry, with national resin production exceeding three million tons annually in 2024 (ANIQ, 2025)[1]. Imports play an important role in meeting domestic demand, particularly in the packaging and consumer goods sectors; in 2024, a total of 5.7 million tons were recorded (ANIQ, 2025). Exports represent a smaller proportion of total flows, with 7.8 million tons recorded in 2024 (ANIQ, 2025).

There are no publicly available disaggregated data on specific chemical additives in these products.

Production, import, and export of phthalates and bisphenols

Regarding international trade flows, Mexico is primarily an importer of phthalates and bisphenols, with no evidence of significant national production. Few trade data exists for phthalates: DOP, DNP, and DBP have import records, with DNP being the only compound with matching information in Data México (2025) and COMTRADE. In all cases, imports far exceed exports, which are practically nonexistent.

Regarding international trade flows, Mexico is primarily an importer of phthalates and bisphenols, with no evidence of significant domestic production. There are limited trade data available for phthalates: DOP, DNP, and DBP have recorded imports, with DNP being the only compound with consistent information across Data México and COMTRADE. In all cases, imports far exceed exports, which are virtually nonexistent. According to Data México[2], the United States is Mexico's main supplier of Dinonyl Phthalate (DNP), with imports exceeding USD 21 million in 2024. China dominates the market for Dioctyl Phthalate (DOP), with import figures reaching USD 5.9 million in 2022. Other countries such as South Korea, Vietnam, Germany, and Chile also contribute to these import flows, indicating strong industrial demand in Mexico.

On bisphenols, available information focuses on Bisphenol A (BPA). Although Data México and COMTRADE figures differ markedly, both confirm that Mexico imports all the BPA it uses. No relevant exports were identified.

---

[1] Asociación Nacional de la Industria Química (ANIQ). (2025). Volumen de Producción y Comercio de Resinas Sintéticas. https://aniq.org.mx/anuario/2025/Capitulo10/volumen-produccion-comercio-resinas-sinteticas.html

[2] DataMéxico:
Ortoftalatos de Dioctilo (DOP): https://www.economia.gob.mx/datamexico/es/profile/product/dioctyl-orthophthalates
Ortoftalatos de Dinonilo o Didecilo (DNP): https://www.economia.gob.mx/datamexico/es/profile/product/orthophthalates-dinonyl-or-didecyl
Tereftalato de Dimetilo (DMT): https://www.economia.gob.mx/datamexico/es/profile/product/dimethylterephthalate

Overall, the data show a high dependence on imported inputs and notable inconsistencies between databases, which limits precise traceability of these chemicals but indicates that their presence in the country comes largely from international trade. According to Data México[3]Taiwan, China has consolidated its position as the main supplier, with import values exceeding USD 668,000 in 2024 and a peak of USD 354,911 in 2023. Other relevant sources include Brazil and the United States.

Regulatory controls on phthalates and bisphenols in the country

In Mexico, phthalates and bisphenols are regulated in a fragmented manner through various regulatory instruments. *NOM-127-SSA1-2021[4] (Water for use and human consumption. Permissible water quality limits)* establishes a limit of 8.0 µg/L for DEHP in drinking water. *NOM-130-SSA1-1995 (Goods and services. Canned foods in hermetically sealed containers subjected to thermal processing. Sanitary provisions and specifications)* allows the use of epoxy and phenolic resins (derived from Bisphenol A) as internal coatings for hermetically sealed food containers. The 2010 *Agreement on forbidden and restricted substances in perfumery and beauty products[5]* regulates dimethyl phthalate, which is permitted only in nail polishes with a maximum allowable concentration of 6%, and dibutyl phthalate, which is permitted exclusively in insect repellents intended for application on clothing.

Moreover, the General Law for the Prevention and Integral Management of Waste (LGPGIR) and NOM-052-SEMARNAT-2005 classify certain phthalates and phenols present in off-specification or expired chemical wastes as hazardous waste

Known impacts of phthalates and bisphenols in the country

Various national studies have documented human exposure:

- Metabolites of phthalates (such as DEHP and DBP derivatives) and BPA have been detected in pregnant women, children, and in the general population.
- Some studies have associated prenatal exposure with respiratory problems, hormonal alterations, neurodevelopmental impacts and growth variations.
- Environmental studies have identified these substances in drinking water, surface waters, food, and household dust.

Of the studies consulted, 17 analyze the following chemical compounds:

The detected **phthalates[6]** include: metabolites of DEHP, DiNP, DiBP, DBP, BBP, DEP, DOP, DMP, DnOP, and BBzP.

---

[3] DataMéxico. 4,4'-Isopropilidendifenol "Bisfenol A, Difenilolpropano" y sus Sales: https://www.economia.gob.mx/datamexico/es/profile/product/44-isopropylidenediphenol-bisphenol-a-diphenylolpropane-and-its-salts

[4] Comisión Nacional del Agua (CONAGUA). (2021). NOM-127-SSA1-2021. https://www.dof.gob.mx/nota_detalle_popup.php?codigo=5650705

[5] Secretaría de Salud (SSA). (2010, 21 de mayo). Acuerdo por el que se determinan las sustancias prohibidas y restringidas en la elaboración de productos de perfumería y belleza. Diario Oficial de la Federación. https://dof.gob.mx/nota_detalle_popup.php?codigo=5143790

[6] - Bhatt, K. D. et al. (2025). Associations Between Prenatal Phthalate Exposure and Atopic Symptoms in Childhood: Effect Modification by Child Sex. Toxics, 13(9), 749. https://doi.org/10.3390/toxics13090749

The detected **bisphenols**[7] include only BPA.

And those that analyze phthalates with bisphenols in **mixed studies**[8], integrating: BPA, BPS, and DEP, DEHP, or BBP.

National endeavors to gradually eliminate bisphenols and phthalates

Mexico does not have national programs specifically aimed at the gradual elimination of these substances. Mexico City, the State of Mexico, and Jalisco have implemented bans on single-use plastics, which reduce the volume of plastic waste but do not regulate chemical additives. Civil society organizations and academic institutions have carried out awareness activities, but there are no structured national campaigns.

- Alcala, C. et. al. (2024). Prenatal exposure to phthalates and childhood wheeze and asthma in the PROGRESS cohort. *The Science of the total environment*, *954*, 176311. https://doi.org/10.1016/j.scitotenv.2024.176311
- Hu, C. Y., et al. (2024). Associations of prenatal exposure to phthalates and their mixture with lung function in Mexican children. Journal of hazardous materials, 475, 134863. https://doi.org/10.1016/j.jhazmat.2024.134863
- Dueñas-Moreno, J.,et al. (2024). Occurrence, ecological and health risk assessment of phthalates in a polluted urban river used for agricultural land irrigation in central Mexico. Environmental research, 240(Pt 1), 117454. https://doi.org/10.1016/j.envres.2023.117454
- Colicino E. et al. (PROGRESS). (2022). Prenatal urinary concentrations of phthalate metabolites and behavioral problems in Mexican children: The Programming Research in Obesity, Growth Environment and Social Stress (PROGRESS) study. Environmental research, 201, 111338. https://doi.org/10.1016/j.envres.2021.111338
- Bustamante-Montes et al. (2021). Phthalates exposure during pregnancy a study in a Mexican cohort. *ScienceDirect*. https://www.sciencedirect.com/science/article/pii/S2214750021000974?via%3Dihub
- García-Fabila, M. Et. Al. (2020). Phthalates in the diet of Mexican children of school age. Risk analysis. Toxicology Reports. Volume 7. Pages 1487-1494. https://www.sciencedirect.com/science/article/pii/S2214750020304285
- Vázquez Francisca et al. (2017). Presencia de ftalatos en agua embotellada comercializada en la Ciudad de México y su migración durante el almacenamiento a diferentes temperaturas. *Tecnología Y Ciencias Del Agua,* 8(5), 91-130. https://doi.org/10.24850/j-tyca-2017-05-06
- Romero-Franco M. et al. (2011). Personal care product use and urinary levels of phthalate metabolites in Mexican women. *Environment international, 37(5), 867–871. https://doi.org/10.1016/j.envint.2011.02.014*
- López-Carrillo L. et al. (2010). Exposure to Phthalates and Breast Cancer Risk in Northern Mexico. *https://doi.org/10.1289/ehp.0901091*

[7] - Moreno P., Tolentino L., Gómez R. (INSP). (2025). Bisfenol A: el peligroso vínculo entre plásticos, obesidad y enfermedades cónicas no transmisibles. *Gaceta INSP*. https://gaceta.insp.mx/bisfenol-a-el-peligroso-vinculo-entre-plasticos-obesidad-y-enfermedades-conicas-no-transmisibles/
- Mandel, et al. (2019). Challenges to regulate products containing bisphenol A: Implications for policy. Salud Pública De México, 61(5, sep-oct), 692-697. https://doi.org/10.21149/10411
- Cantonwine D. et al. (2010). Bisphenol a exposure in Mexico City and risk of prematurity: a pilot nested case control study. *Environmental Health Journal*, *9*(62). https://doi.org/10.1186/1476-069X-9-62

[8] - Segovia-Mendoza, M., et al. (2022). Association of Serum Levels of Plasticizers Compounds, Phthalates and Bisphenols, in Patients and Survivors of Breast Cancer: A Real Connection? https://doi.org/10.3390/ijerph19138040
- Hernández Cadena, L. et al. (2018). Hormonal Changes at Early Age and Prenatal Exposure to Phthalates and Bisphenol A in a Cohort of Cuernavaca, Morelos, México. *EHP Abstract*.
- Watkins, D. J., et. al. (2017). Phthalate and bisphenol A exposure during in utero windows of susceptibility in relation to reproductive hormones and pubertal development in girls. Environmental research, 159, 143–151. https://doi.org/10.1016/j.envres.2017.07.051
- Ferguson. et al. (2014). Prenatal and peripubertal phthalates and bisphenol A in relation to sex hormones and puberty in boys. Reproductive toxicology (Elmsford, N.Y.), 47, 70–76. https://doi.org/10.1016/j.reprotox.2014.06.002

Main challenges

- Fragmented and outdated regulatory framework
- Lack of national chemicals-specific data
- Limited industrial transparency
- High dependence on imported plastics and recycled materials
- Insufficient biomonitoring and environmental surveillance capacity

Recommendations and project proposals to strengthen national regulation

- Update and harmonize the Mexican Official Standards (NOMs) applicable to phthalates and bisphenols to create an integrated regulatory framework, incorporating criteria for the identification, control, phaseout and management of these substances in food-contact materials, children's products, consumer goods and recycled plastics.

Other relevant information

Mexico has a strong environmental health scientific community which can support monitoring, regulatory development and public communication. Current data gaps are clear opportunities to improve transparency systems, harmonize regulations, and adopt precautionary approaches aligned with emerging international standards.