

# M

IARC MONOGRAPHS



## ASPARTAME, METHYLEUGENOL, AND ISOEUGENOL

VOLUME 134

IARC MONOGRAPHS  
ON THE IDENTIFICATION  
OF CARCINOGENIC HAZARDS  
TO HUMANS

Advance publication, 29 April 2024

International Agency for Research on Cancer



World Health  
Organization



# ASPARTAME, METHYLEUGENOL, AND ISOEUGENOL

VOLUME 134

This publication represents the views and expert opinions of an IARC Working Group on the Identification of Carcinogenic Hazards to Humans, which met in Lyon, France, 6–13 June 2023

LYON, FRANCE - 2024

IARC MONOGRAPHS  
ON THE IDENTIFICATION  
OF CARCINOGENIC HAZARDS  
TO HUMANS



## IARC MONOGRAPHS

In 1969, the International Agency for Research on Cancer (IARC) initiated a programme on the evaluation of the carcinogenic hazard of chemicals to humans, involving the production of critically evaluated monographs on individual chemicals. The programme was subsequently expanded to include evaluations of carcinogenic hazards associated with exposures to complex mixtures, lifestyle factors and biological and physical agents, as well as those in specific occupations. The objective of the programme is to elaborate and publish in the form of monographs critical reviews of data on carcinogenicity for agents to which humans are known to be exposed and on specific exposure situations; to evaluate these data in terms of cancer hazard to humans with the help of international working groups of experts in carcinogenesis and related fields; and to identify gaps in evidence. The lists of IARC evaluations are regularly updated and are available on the internet at <https://monographs.iarc.who.int/>.

This programme has been supported since 1982 by Cooperative Agreement U01 CA33193 with the United States National Cancer Institute, Department of Health and Human Services. Additional support has been provided since 1986 by the European Commission Directorate-General for Employment, Social Affairs, and Inclusion, initially by the Unit of Health, Safety and Hygiene at Work, and since 2014 by the European Union Programme for Employment and Social Innovation “EaSI” (for further information please consult: <https://ec.europa.eu/social/easi>). Support has also been provided since 1992 by the United States National Institute of Environmental Health Sciences, Department of Health and Human Services. The contents of this volume are solely the responsibility of the Working Group and do not necessarily represent the official views of the United States National Cancer Institute, the United States National Institute of Environmental Health Sciences, the United States Department of Health and Human Services, or the European Commission.



Co-funded by the European Union

Published by the International Agency for Research on Cancer,  
25 avenue Tony Garnier, CS 90627, 69366 Lyon Cedex 07, France  
©International Agency for Research on Cancer, 2024  
Online publication, April 2024 (aspartame only)

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. All rights reserved.

*IARC Monographs* (and Corrigenda) are published online at <https://publications.iarc.who.int>.  
To report an error, please contact: [imo@iarc.who.int](mailto:imo@iarc.who.int).

Distributed by WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland  
(tel.: +41 22 791 3264; fax: +41 22 791 4857; website: <https://apps.who.int/bookorders>; email: [bookorders@who.int](mailto:bookorders@who.int)).

Permissions and rights: Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 IGO licence (CC BY-NC-ND 3.0 IGO; <https://creativecommons.org/licenses/by-nc-nd/3.0/igo/>).

Under the terms of this licence, you may copy and redistribute the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products, or services. The use of the WHO logo is not permitted. Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization.

To submit requests for adaptations or commercial use and queries on rights and licensing, see the IARC Publications website (<https://publications.iarc.who.int/Rights-And-Permissions>).

Third-party materials: If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers: The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO or contributing agencies be liable for damages arising from its use.

The *IARC Monographs* Working Group alone is responsible for the views expressed in this publication.

Advance publication, 29 April 2024



About the cover: A wide range of beverages and food products sweetened with aspartame is available to the consumer.  
Source: © Sariyono/Adobe Stock

How to cite: IARC (2024). Aspartame. *IARC Monogr Identif Carcinog Hazards Hum.* 134: 1–533. Advance publication.

#### **IARC Library Cataloguing-in-Publication Data**

Names: IARC Working Group on the Identification of Carcinogenic Hazards to Humans.

Title: Aspartame, methyleugenol, and isoeugenol

Description: Lyon: International Agency for Research on Cancer, 2024. | Series: IARC monographs on the identification of carcinogenic hazards to humans, ISSN 1017-1606; v. 134. | “This publication represents the views and expert opinions of an IARC Working Group on the Identification of Carcinogenic Hazards to Humans, which met in Lyon, France, 6–13 June 2023.” | Includes bibliographical references.

Identifiers: ISBN 9789283201731 (pbk.) | ISBN 9789283202912 (ebook)

Subjects: MESH: Neoplasms--etiology. | Aspartame. | Eugenol. | Risk Factors.

Classification: NLM W1



The IARC *Monographs* Working Group and Secretariat for Volume 134, Aspartame, methyleugenol, and isoeugenol, which met in Lyon, France, on 6–13 June 2023.