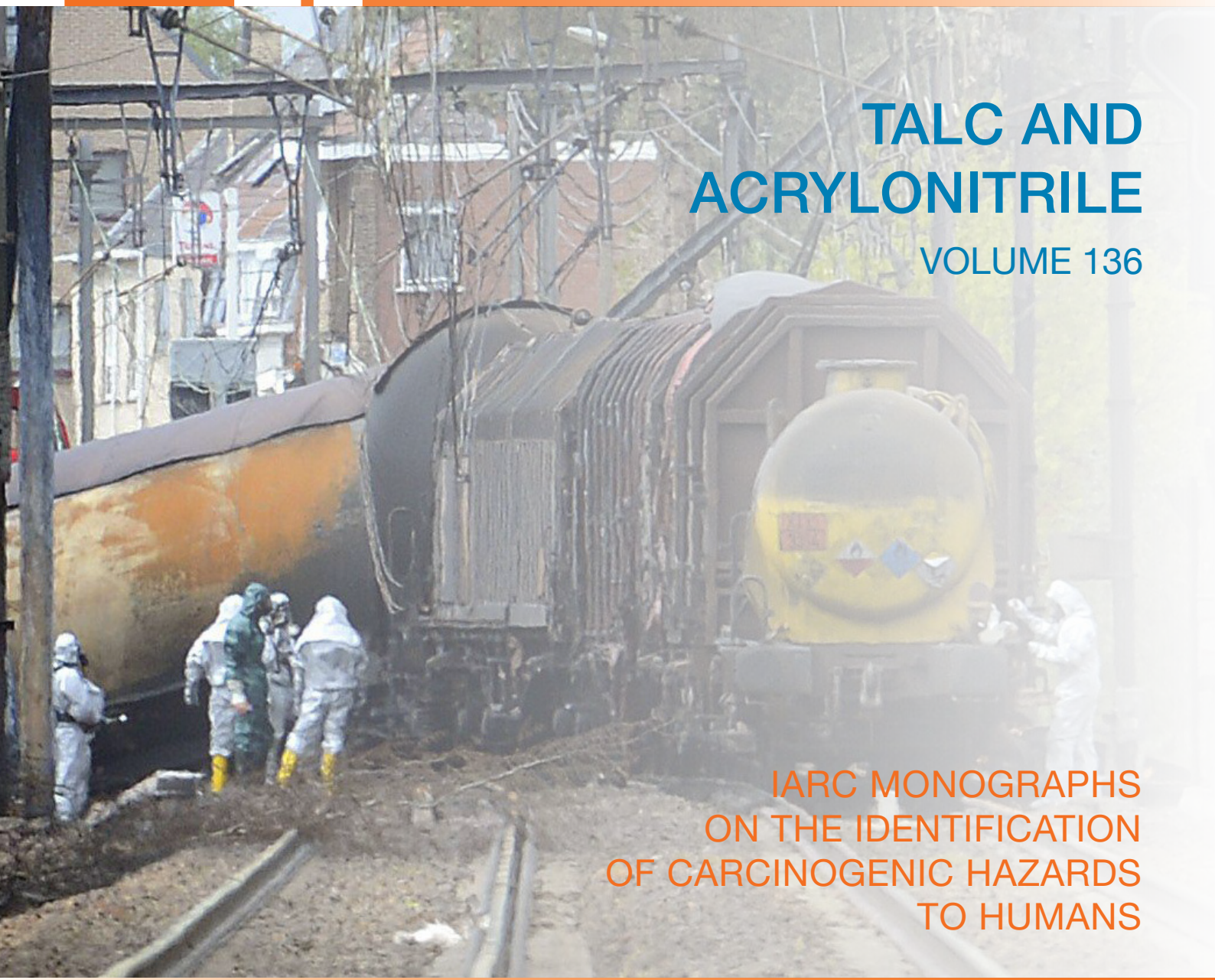
IARC MONOGRAPHS



TALC AND ACRYLONITRILE

VOLUME 136

IARC MONOGRAPHS ON THE IDENTIFICATION OF CARCINOGENIC HAZARDS TO HUMANS

International Agency for Research on Cancer

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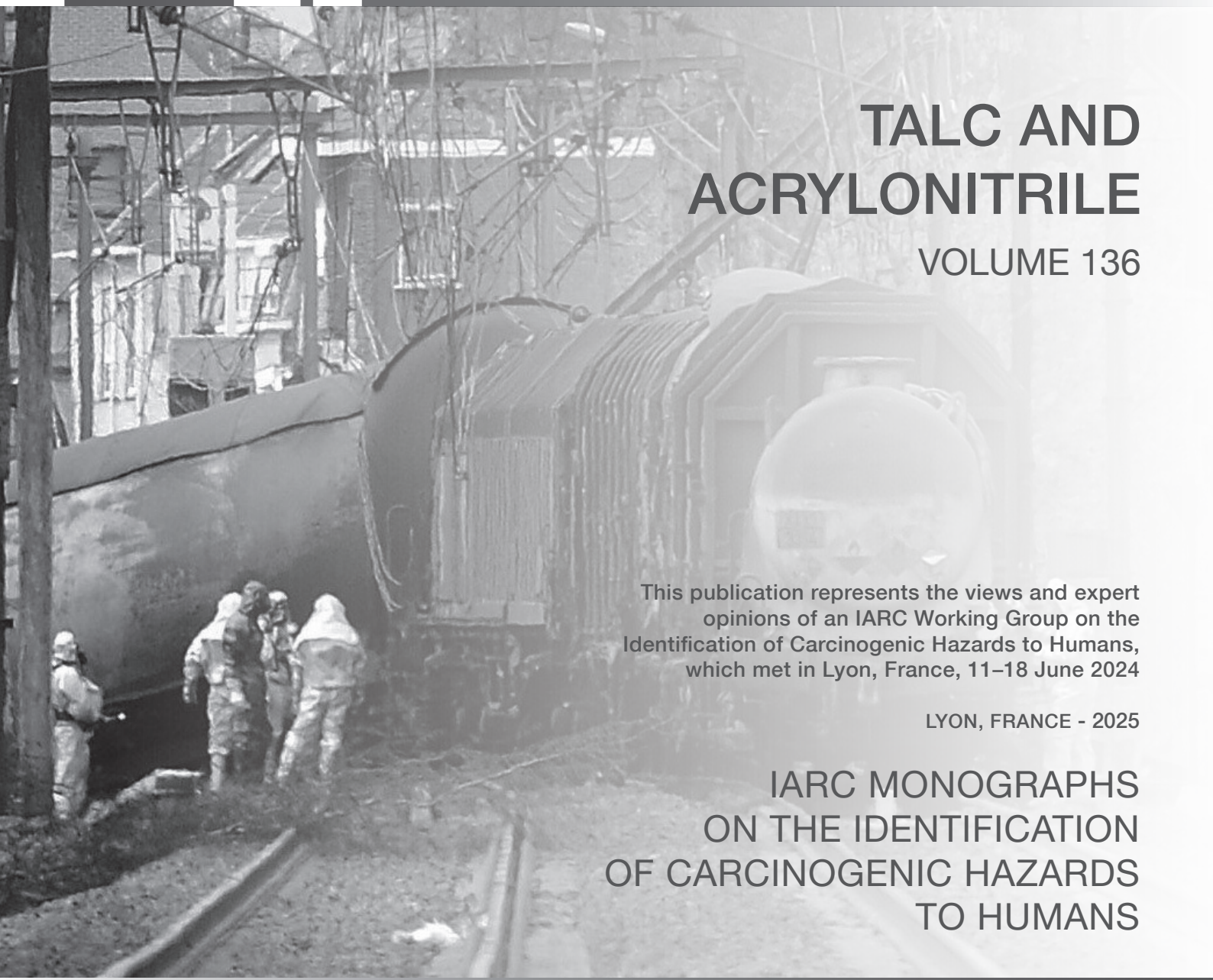

TALC AND ACRYLONITRILE

VOLUME 136

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, 11–18 June 2024

LYON, FRANCE - 2025

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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.

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About the cover: The cover photo shows draining activities at the wreck of a train that was transporting acrylonitrile and that derailed in Wetteren, Belgium, in May 2013. The incident led to the emergency evacuation of some 500 local residents.

Source: © Belga News Agency/Alamy Stock Photo

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The *IARC Monographs* Working Group and Secretariat for Meeting 136, Talc and Acrylonitrile, which took place in Lyon, France, on 11–18 June 2024.

IARC MONOGRAPHS

This volume of the *IARC Monographs* provides evaluations of the carcinogenicity of talc and acrylonitrile.

Talc was defined as a mineral (natural) or synthetic product, a hydrated magnesium silicate, that exists in both lamellar and fibrous (including asbestiform) types. Asbestiform talc is not asbestos; however, asbestos is present in some talc deposits and has been shown to contaminate some talc products. A mineral with a high production volume, talc is used in plastics, ceramics, paint, paper, roofing materials, rubber products, animal feed, food, fertilizers, cosmetics, and pharmaceuticals. It is also used in clinical settings for pleurodesis. Occupational exposure to talc dust occurs predominantly during mining and milling, mainly via inhalation, but can also occur among workers in downstream industries. The general population may be exposed via talc-based consumer products, and pathways of exposure include ingestion, inhalation, and dermal contact, including via the perineum.

Acrylonitrile is a chemical with a high production volume that is mostly used as a monomer to prepare polymers for the manufacture of fibres for textiles (acrylic fibres) used in clothing and carpets and other textiles, resins, synthetic rubber, and plastics. Occupational exposure occurs mainly in production industries via inhalation and dermal routes. The general population can be exposed to acrylonitrile via cigarette smoking, air pollution, and contact with contaminated consumer products.

An *IARC Monographs* Working Group reviewed evidence from epidemiological studies, cancer bioassays in experimental animals, and mechanistic studies to assess the carcinogenic hazard to humans of exposure to these agents and concluded that:

- **Talc is *probably carcinogenic to humans (Group 2A)*;**
- **Acrylonitrile is *carcinogenic to humans (Group 1)*.**