

Section 1. Exposure data

Notes: The structure and content of Section 1 have been modified: please read these general instructions in their entirety. The Monograph outline provides specific writing assignments, including any modifications of the section structure. Please adhere to the suggested page limits for each section.

Section 1 identifies the agent, describes its measurement, main uses and production volume and summarizes the prevalence and level of human exposure worldwide. Methods of measurement and regulations are noted where relevant. Information is obtained from research studies, government reports and other publicly available sources, with all statements of scientific fact substantiated by a fully referenced article, report or web site. **The data should present a representative overview, but all the available data are not comprehensively reviewed.**

1.1 Identification of the agent (1 page for a single chemical; 2–3 pages for mixtures, occupations or industries)

The agent being evaluated is unambiguously identified. For chemicals, provide the Chemical Abstracts Service Registry number, the latest primary name and the IUPAC systemic name and other names in common usage. Briefly describe physical and chemical properties relevant to occurrence, identification and biological activity and occurrence (e.g. liquid, solid or gaseous state; volatility, etc. for chemicals; composition, crystal structure and morphology for minerals; energy transfer for radiation, etc.). For a mixture, describe the main components, their sources and their relative proportions. Note impurities, contamination, bioaccumulation or transformations that may have an impact on the carcinogenicity evaluation (e.g. dioxin contamination of 2,4,5-T, or weathering of PCBs in the environment). For an occupation or industry, describe the nature of the work and the agents involved with a focus on exposure to potential carcinogens. If the material tested in animals or in-vitro systems is different from that to which humans are likely to be exposed, note the relevant differences.

1.2 Production & use (1–2 pages; may be modified or omitted if covered in 1.1.)

1.2.1 Uses. Describe the principal uses; if possible, indicate the amount or proportion attributed to each. Include minor or historical uses with significant exposure potential or that may aid interpretation of available epidemiological studies. A tabular summary may aid presentation if major and minor uses are numerous.

1.2.2 Production. When relevant, indicate production quantities and countries where the agent is produced. Note if nationally or internationally classified as of high production volume. Indicate production processes with significant potential for occupational exposure. If significant exposures have occurred

historically, note when production or exposure began and describe important changes in production processes, volume, or locations.

1.3 Methods of measurement and analysis

1.3.1. Detection and quantification (up to 1 page + 1 optional table; may be omitted or modified according to relevance for the agent) (see [sample template for optional Table 1.3](#)). An overview of analytical methods for detecting and quantifying the agent for research and regulatory purposes is provided as appropriate for the agent and specified in the Monograph outline. Describe in terms accessible to general readers the measurement methods for sample matrices that are important sources of human exposure (e.g. air, drinking-water) and for important validated exposure biomarkers (e.g. metabolites of the agent in urine). Address sampling issues (e.g. location, duration, personal versus environmental) pertinent to estimating population exposure. *A tabular summary with standard references may optionally be used for multiple analytical methods or sample matrices. NB: Technical details of chemical analyses are no longer required.*

1.3.2 Exposure assessment and biological markers (up to 5 pages + 1 optional table). This section is a critical review of the exposure assessment methods used in epidemiological studies that provide data relevant to the evaluation. When pertinent for the interpretation of those studies, describe and assess the strengths and limitations of exposure assessment methods that were used. Such methods might include, for example, questionnaires, expert assessment, job-exposure matrices, exposure modelling, or biological markers. *A table may be included to summarize methods and their strengths and limitations.*

1.4 Occurrence and exposure

Quantitative information regarding the prevalence and level of exposure is summarized for a concise overview of human exposure worldwide.

1.4.1. Exposures (up to 5 pages each of text and tables). Briefly describe the principal sources of population exposure (e.g. air, drinking-water, food, personal habits, or workplace). Naturally-occurring sources of exposures, if any, are noted. For those exposure sources that are significant, **representative** exposure data from research studies, government reports and web sites, and other citable, publicly available sources are tabulated. It is important to search for and include data from low- and middle-income countries to the extent possible. Where data are lacking for important regions or countries, this is noted.

Exposure data for this section are tabulated using the IARC Table Builder online tool, which can be accessed through a link in the IARC Online Publications System (IOPS).

NB: Current exposures are of primary interest, but historical exposures may be as relevant for interpreting epidemiological studies and when agents are persistent or have long-term effects (cf. previous Monograph – if available). Data regarding environmental media, plants or wildlife that are not important

sources of direct human exposure can be excluded. Similarly, data concerning remote, unpopulated sites (“background” exposures) may not be pertinent.

1.5 Regulations and guidelines (up to 1 page and 1 optional table; may be omitted if not applicable)

If regulations or guidelines have been established for the agent, the approach taken is described in a brief narrative. The applicable populations, the media concerned, and the basis on cancer risk, other health risks, or environmental considerations may be relevant. National and international bans on production, use, and trade are noted. If exposure limits have been established, these may optionally be tabulated if informative for the interpretation of existing or historical exposure levels.

See [sample template for optional Table 1.5](#)