

Nitric oxide; CASRN 10102-43-9

Human health assessment information on a chemical substance is included in the IRIS database only after a comprehensive review of toxicity data, as outlined in the [IRIS assessment development process](#). Sections I (Health Hazard Assessments for Noncarcinogenic Effects) and II (Carcinogenicity Assessment for Lifetime Exposure) present the conclusions that were reached during the assessment development process. Supporting information and explanations of the methods used to derive the values given in IRIS are provided in the [guidance documents located on the IRIS website](#).

STATUS OF DATA FOR Nitric oxide

File First On-Line 01/31/1987

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	withdrawn; message	09/01/1994
Inhalation RfC (I.B.)	not evaluated	
Carcinogenicity Assessment (II.)	not evaluated	

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

I.A. Reference Dose for Chronic Oral Exposure (RfD)

Substance Name — Nitric oxide

CASRN — 10102-43-9

Primary Synonym — Nitrogen monoxide

The RfD for nitric oxide (nitrogen monoxide) has been withdrawn from IRIS on 09/01/1994 based on the fact that it is extremely insoluble in water (0.006 g/100 g of water at Standard Temperature and Pressure (STP); U.S. EPA, 1993) and the small amount that does dissolve (60 ppm) reacts with water to form nitrous acid or nitrites, depending on the pH.

In the presence of alkali (pH >7.0), nitrites are formed from nitrous acid. An RfD presently exists for nitrites and, as more fully explained in the IRIS file for nitrite, it is based on the fact that

nitrites are capable of oxidizing hemoglobin (Fe⁺⁺) to ferric hemoglobin (Fe⁺⁺⁺), commonly referred to as methemoglobin. The inability of methemoglobin to combine with oxygen results in clinical effects due to tissue hypoxia.

U.S. EPA. 1993. Air Quality Criteria for Oxides of Nitrogen. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8-91/049aF.

Agency Work Group Review — 08/19/1985, 02/26/1986, 06/24/1992, 08/04/1994

EPA Contacts:

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (FAX) or hotline.iris@epa.gov (internet address).

Screening-Level Literature Review Findings — A screening-level review conducted by an EPA contractor of the more recent toxicology literature pertinent to the RfD for nitric oxide conducted in August 2003 did not identify any critical new studies. IRIS users who know of important new studies may provide that information to the IRIS Hotline at hotline.iris@epa.gov or 202-566-1676.

I.B. Reference Concentration for Chronic Inhalation Exposure (RfC)

Substance Name — Nitric oxide

CASRN — 10102-43-9

Primary Synonym — Nitrogen monoxide

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Nitric oxide

CASRN — 10102-43-9

Primary Synonym — Nitrogen monoxide

This substance/agent has not undergone a complete evaluation and determination under US EPA's IRIS program for evidence of human carcinogenic potential.

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — Nitric oxide

CASRN — 10102-43-9

Primary Synonym — Nitrogen monoxide

VI.A. Oral RfD References

U.S. EPA. 1993. Air Quality Criteria for Oxides of Nitrogen. Office of Health and Environmental Assessment, Environmental Criteria and Assessment Office, Research Triangle Park, NC. EPA-600/8-91/049aF.

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Nitric oxide

CASRN — 10102-43-9

Primary Synonym — Nitrogen monoxide

Date	Section	Description
09/01/1994	I.A.	RfD withdrawn; replaced with permanent withdrawal msg
10/28/2003	I.A	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Nitric oxide

CASRN — 10102-43-9

Primary Synonym — Nitrogen monoxide

Last Revised — 01/31/1987

- 10102-43-9
- Bioxyde d'azote
- Nitric Oxide
- Nitrogen monoxide
- Nitrogen oxide, natural
- Nitrogen oxide (NO)
- Nitrosyl radical
- WLN: .N-O
- WLN: N O.