

Mepiquat chloride; CASRN 24307-26-4

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 Mepiquat chloride

File First On-Line 08/22/1988

Category (section)	Assessment Available?	Last Revised
Oral RfD (I.A.)	yes	08/22/1988
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)

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Last Revised — 08/22/1988

The oral Reference Dose (RfD) is based on the assumption that thresholds exist for certain toxic effects such as cellular necrosis. It is expressed in units of mg/kg-day. In general, the RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Please refer to the Background Document for an elaboration of these concepts. RfDs can also be derived for the noncarcinogenic health effects of substances that are also carcinogens. Therefore, it is essential to refer to other sources of

information concerning the carcinogenicity of this substance. If the U.S. EPA has evaluated this substance for potential human carcinogenicity, a summary of that evaluation will be contained in Section II of this file.

I.A.1. Oral RfD Summary

Critical Effect	Experimental Doses*	UF	MF	RfD
Sedation and toniclonic spasms; decreased food intake and body weights; hematologic effects	NOEL: 1000 ppm (25 mg/kg/day) LEL: 3000 ppm (75 mg/kg/day)	1000	1	3E-2 mg/kg/day
90-Day Dog Feeding Study				
BASF Wyandotte Chemical, 1977a				

* Conversion Factors: 1 ppm = 0.025 mg/kg/day (assumed dog food consumption)

I.A.2. Principal and Supporting Studies (Oral RfD)

BASF Wyandotte Chemical Corporation. 1977a. MRID No. 00135720. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

Mepiquat chloride was fed to pure bred beagle dogs (4/sex/dose level), 10 months of age, for 90 days in the diet at 0, 100, 300, 1000, and 3000 ppm (0, 2.5, 7.5, 25, and 75 mg/kg/day). No effects were observed at the 100, 300, and 1000 ppm dose levels. At 3000 ppm (75 mg/kg/day), HDT, effects included the following: sedation and toniclonic spasms; decreased food intake and body weights; decreased hemoglobin and RBC; and increased hematocrit and reticulocytes. The NOEL for systemic toxicity is therefore established at 1000 ppm (25 mg/kg/day).

I.A.3. Uncertainty and Modifying Factors (Oral RfD)

UF — An uncertainty of 100 was used to account for the inter- and intraspecies differences. An additional UF of 10 was used to account for the lack of a chronic dog feeding study and for the extrapolation from subchronic to chronic.

MF — None

I.A.4. Additional Studies/Comments (Oral RfD)

Data Considered for Establishing the RfD

1) 90-Day Feeding - dog: Principal study - see previous description; core grade guideline (BASF Wyandotte Chemical, 1977a)

2) 2-Year Feeding (oncogenic) - rat: Systemic NOEL=1000 ppm (50 mg/kg/day); Systemic LEL=3000 ppm (150 mg/kg/day) (decreased food intake and body weight gain); core grade minimum (BASF Wyandotte Chemical Corp., 1979a)

3) 3-Generation Reproduction and Teratology Study - rat: Maternal and Developmental NOEL=3191 ppm (340 mg/kg/day; value determined by the Registrant) (HDT); LEL=none; core grade minimum (BASF Wyandotte Chemical Corp., 1979b)

Other Data Reviewed:

1) 2-Year Feeding (oncogenic) - mouse: Systemic NOEL=1000 ppm (150 mg/kg/day); Systemic LEL=3000 ppm (450 mg/kg/day) (HDT; increased incidence of leucocytes in males and serum free cholesterol in females); core grade minimum (BASF Wyandotte Chemical Corp., 1979c)

2) 90-Day Feeding - rat: NOEL=100 ppm (50 mg/kg/day); LEL=3000 ppm (150 mg/kg/day) (HDT; decreased body weight and food consumption in both sexes; decreased absolute weights of heart, kidneys, liver, lungs, and spleen in males); core grade minimum (BASF Wyandotte Chemical Corp., 1977b)

Data Gap(s): Chronic Dog Feeding Study; Rabbit Teratology Study

I.A.5. Confidence in the Oral RfD

Study — High
Database — Medium
RfD — Medium

The critical study is of good quality and is given a high confidence rating. Since a chronic study testing the more sensitive species (dog) is missing, the database is given a medium confidence rating. Medium confidence in the RfD follows.

I.A.6. EPA Documentation and Review of the Oral RfD

Source Document — This assessment is not presented in any existing U.S. EPA document.

Other EPA Documentation — Pesticide Registration Files

Agency Work Group Review — 02/25/1988

Verification Date — 02/25/1988

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 Mepiquat chloride conducted in September 2002 identified one or more significant new studies. IRIS users may request the references for those studies from the IRIS Hotline at hotline.iris@epa.gov or (202)566-1676.

I.A.7. EPA Contacts (Oral RfD)

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).

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

Substance Name — Mepiquat chloride
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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Mepiquat chloride
CASRN — 24307-26-4

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 — Mepiquat chloride
CASRN — 24307-26-4

VI.A. Oral RfD References

BASF Wyandotte Chemical Corporation. 1977a. MRID No. 00135720. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

BASF Wyandotte Chemical Corporation. 1977b. MRID No. 00135719. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

BASF Wyandotte Chemical Corporation. 1979a. MRID No. 00083567. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

BASF Wyandotte Chemical Corporation. 1979b. MRID No. 00081316. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

BASF Wyandotte Chemical Corporation. 1979c. MRID No. 00083567. Available from EPA. Write to FOI, EPA, Washington D.C. 20460.

VI.B. Inhalation RfC References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Mepiquat chloride

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Date	Section	Description
08/22/1988	I.A.	Oral RfD summary on-line
12/03/2002	I.A.6.	Screening-Level Literature Review Findings message has been added.

VIII. Synonyms

Substance Name — Mepiquat chloride

CASRN — 24307-26-4

Last Revised — 08/22/1988

- 24307-26-4
- BAS-083
- BAS-08300W
- BAS 08301W
- BAS 08305 W
- BAS 08306 W
- BAS 08307 W
- BAS85559X

- 1,1-dimethylpiperidinium chloride
- Mepiquat chloride
- N,N-dimethyl-piperidinium chloride
- piperidinium, 1,1-dimethyl-, chloride
- pix
- terpal