

## 7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding MTBE in air, water, and other media are summarized in Table 7-1.

An acute-duration inhalation MRL of 2 ppm for MTBE was derived. The MRL is based on a NOAEL value of 800 ppm for 6 hours for central nervous system sedation in rats in the 6-hour study by Gill (1989).

An intermediate-duration inhalation MRL of 0.7 ppm for MTBE was derived. The MRL is based on a NOAEL value of 400 ppm for 6 hours/day, 5 days/week for central nervous system sedation in rats in the 14-19-week reproduction study by Neeper-Bradley (1991).

A chronic-duration inhalation MRL of 0.7 ppm for MTBE was derived. The MRL is based on a NOAEL value of 400 ppm for 6 hours/day, 5 days/week for increased incidence and severity of chronic progressive nephropathy in female rats in the 24-month study by Chun et al. (1992).

An acute-duration oral MRL of 0.4 mg/kg/day for MTBE was derived. The MRL is based on a NOAEL value of 40 mg/kg for drowsiness in rats in the study by Bioresearch Labs (1990b).

An intermediate-duration oral MRL of 0.3 mg/kg/day for MTBE was derived. The MRL is based on a LOAEL value of 100 mg/kg/day for hepatic effects (decreased BUN levels) in rats in the 90-day study by Robinson et al. (1990).

EPA has verified a reference concentration (RfC) of 3 mg/m<sup>3</sup> (0.8 ppm) for MTBE (IRIS 1996). The RfC is based on the NOAEL of 400 ppm, 6 hours/day, 5 days/week (equivalent to 259 mg/m<sup>3</sup>) in the 24-month inhalation study of rats by Chun et al. (1992). The study found increased liver and kidney weights and increased severity of spontaneous renal lesions in females, increased prostration in females, and swollen periocular tissue in males and females at  $\geq 3,000$  ppm.

An oral reference dose (RfD) for MTBE is undergoing review by an EPA Workgroup (IRIS 1996). Table 7-1 shows an advisory RfD.

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The EPA has identified MTBE as a possible human carcinogen, Class C (EPA 1995). Neither the International Agency for Research on Cancer (IARC) nor the National Toxicology Program has a cancer classification for MTBE.

MTBE is on the list of chemicals regulated based on “The Emergency Planning and Community Right-to-Know Act of 1986” (EPCRA) (EPA 1988b). Section 313 of Title III of EPCRA requires owners and operators of certain facilities that manufacture, import, process, or otherwise use the chemicals on this list to report annually their release of those chemicals to any environmental media.

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**Table 7-1. Regulations and Guidelines Applicable to Methyl *tert*-Butyl Ether (MTBE)**

Agency	Description	Information	Reference
<b><u>INTERNATIONAL</u></b>			
WHO		NA	
IARC	Group (cancer ranking)	NA	
<b><u>NATIONAL</u></b>			
<b>Regulations:</b>			
a. Air: EPA	CAAA Title III	None	U.S. Congress § 112 of CAAA 10/26/90
	Standards of Performance for VOC Emissions from SOCM, Distillation Operations - Chemicals Affected	Yes	40 CFR 60.667 EPA 1990b
	Standards of Performance for VOC Emissions from SOCM, Reactor Processes - Chemicals Affected	Yes	40 CFR 60.707 EPA 1993b
	Regulation of Fuels and Fuel Additives - Complex Emission Models	Yes	40 CFR 80.45 EPA 1994a
	Measurement of Reformulated Gasoline Fuel Parameters	Yes	40 CFR 80.46 EPA 1994b
b. Water: EPA/OW	Description of Bulk Organic Chemicals Subcategory	Yes	40 CFR 414.70 EPA 1987
c. Other: EPA/OERR	Toxic Chemical Release Reporting: Chemicals and Chemical Categories to Which This Part Applies		40 CFR 372.65 EPA 1988b
EPA/OSW	Hazardous Waste From Non-specific Sources	Yes	40 CFR 261.31 EPA 1980a
	Discarded Commercial Chemical Products, Off-specification Species, Container Residues, and Spill Residues Thereof	Yes	40 CFR 261.33 EPA 1980b
<b>Guidelines:</b>			
a. Air	Workplace Environmental Exposure Level (WEEL) - 8-hour Time-Weighted Average	100 ppm	AIHA 1992
	EPA/OAR Reference Concentration	3 mg/m <sup>3</sup>	IRIS 1996
b. Water: EPA/OW	1-day Health Advisory	3 mg/L (child)	EPA 1995d
	10-day Health Advisory	3 mg/L (child)	EPA 1995d
	Lifetime Health Advisory	0.02-0.2 <sup>a</sup> mg/L (adult)	EPA 1995d
	Longer-term Health Advisory	0.5 mg/L (child) 2 mg/L (adult)	EPA 1995d EPA 1995d
	Reference Dose	0.03 mg/kg/day	EPA 1995d
	Drinking Water Equivalent Level	0.2 mg/L	EPA 1995d

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**Table 7-1. Regulations and Guidelines Applicable to Methyl *tert*-Butyl Ether (MTBE) (continued)**

Agency	Description	Information	Reference
c. Other:			
EPA	Cancer Classification	C <sup>b</sup>	EPA 1995d
NTP	Cancer Classification	NA	
<b>STATE</b>			
Regulations and Guidelines			
a. Water:			
	Water Quality: Human Health		
AZ	Domestic/Drinking Water	35 µg/L	Sittig 1994
CT	Drinking Water Guideline	100 µg/L	FSTRAC 1990
MA	Drinking Water Guideline	50 µg/L	FSTRAC 1990
ME	Drinking Water Guideline	50 µg/L	FSTRAC 1990
MI	Domestic/Drinking Water	230 µg/L	Sittig 1994
NH	Drinking Water Guideline	200 µg/L	FSTRAC 1990
NJ	MCL Recommendation	70 µg/L	NJ Drinking Water Institute 1994
RI	Drinking Water Guideline	50 µg/L	FSTRAC 1990
VT	Drinking Water Standard	40 µg/L	FSTRAC 1990

NOTE: Update of drinking water guidelines and other areas in progress.  
Units in table reflect values and units of measure designated by each agency in its regulations or advisories.

<sup>a</sup>The lifetime health advisory is 0.020 mg/L, otherwise, it is 0.20 mg/L

<sup>b</sup>C = Possible human carcinogen

AIHA = American Industrial Hygiene Association; CAAA = Clean Air Act Amendments; EPA = Environmental Protection Agency; FSTRAC = Federal State Toxicology and Regulation Alliance committee; IARC = International Agency for Research on Cancer; NA = Not available at the present time; OERR = Office of Emergency and Remedial Response; OSW = Office of Solid Waste; OW = Office of Water; VOC = Volatile Organic Compound; WHO = World Health Organization