

## 7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding fuel oils in air, water, and other media are summarized in Table 7-1. There are only a few regulations that are specific to a particular fuel oil and these are indicated in the table.

An acute inhalation MRL of 0.02 mg/m<sup>3</sup> was derived for fuel oil no. 2. The MRL is based on a LOAEL value of 65 mg/m<sup>3</sup> for neurobehavioral effects (mild transient ataxia and CNS depression) in mice exposed to airborne concentrations of fuel oil no. 2.

An intermediate inhalation MRL of 0.01 mg/m<sup>3</sup> was derived for fuel oil no. 1. The MRL is based on decreased blood glucose levels in male rats exposed to airborne concentrations of kerosene averaging 58 mg/m<sup>3</sup> for 6 hours/day, 6 days/week for 14 weeks. Rats exposed to airborne concentrations of kerosene averaging 231 mg/m<sup>3</sup> showed a decrease in blood glucose titers, as well as increased circulating levels of lactate and pyruvate.

The EPA has no oral reference dose (RfD) or inhalation reference concentration (RfC) for any of the fuel oils.

Under the Hazardous Materials Transportation Act, fuel oils are designated as hazardous substances subject to special requirements for packaging, labeling, and transportation (DOT 1989a, 1989b).

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TABLE 7-1. Regulations and Guidelines Applicable to Fuel Oils

Agency	Description	Information	References
<b>INTERNATIONAL</b>			
IARC	Carcinogenic classification for occupational exposures in petroleum refining	Group 2A <sup>a</sup>	IARC 1989
	Carcinogenic classification marine diesel fuel residual (heavy) fuel oils jet fuels distillate (light) diesel fuels	Group 2B <sup>b</sup> Group 2B Group 3 <sup>c</sup> Group 3	
<b>NATIONAL</b>			
Regulations:			
a. Air:			
AFOSH	PEL TWA Petroleum distillates (naphtha) STEL (15 minutes) Petroleum distillates (naphtha)	400 ppm	Air Force 1989
NIOSH	TWA Petroleum distillates (naphtha) Ceiling REL (15 minutes) Petroleum distillates (naphtha) IDLH	85 ppm (350 mg/m <sup>3</sup> ) 438 ppm (1,800 mg/m <sup>3</sup> )	NIOSH 1992
OSHA	Petroleum distillates (naphtha) PEL TWA Petroleum distillates (naphtha)	10,000 ppm 400 ppm	NIOSH 1990 OSHA 1989a (29 CFR 1910.1000); OSHA 1989b
b. Other:			
DOT	Hazardous Material Transportation Act: Fuel oils are designated as hazardous materials which are subject to requirements for packaging, shipping, and transporting	Yes	DOT 1989a (49 CFR 172.101 Appendix A); DOT 1989b
EPA	Toxic Substances Control Act: Manufacturers and processors of the C <sub>9</sub> aromatic hydrocarbon fraction must test this fraction for the following: neurotoxicity, mutagenicity, developmental toxicity, reproductive effects, and oncogenicity	Yes	EPA 1991a (40 CFR 799.2175); EPA 1987c
EPA	Marine Protection Research and Sanctuaries Act: Ocean dumping of organohalogen compounds or oils of any kind which are known or suspected carcinogens, mutagens, or teratogens is prohibited except when they are present as trace contaminants	Yes	EPA 1991b (40 CFR 227.6)
Guidelines:			
a. Other:			
EPA	Domestic water supply must be virtually free from oil and grease, particularly from the tastes and odors that emanate from petroleum products	Yes	EPA 1986c
	For aquatic life, levels must be $\leq 0.01$ of the lowest continuous flow 96-h LC <sub>50</sub>	Yes	EPA 1986c

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TABLE 7-1. Regulations and Guidelines Applicable to Fuel Oils (continued)

Agency	Description	Information	References
<b><u>NATIONAL (Cont.)</u></b>			
	Clean Water Act: Oil and grease are designated as conventional pollutants. Effluent limitations for oil and grease (polynuclear aromatic hydrocarbons) exist for almost all point sources under the general pretreatment standards for new and existing sources	Yes	EPA 1988b (40 CFR 403.2); EPA 1988c
	Pesticide subject to registration and/or reregistration (kerosene)	Yes	EPA 1989c (40 CFR 152.146); EPA 1989b
<b><u>STATE</u></b>			
<b>Regulations and Guidelines:</b>			
<b>a. Air:</b>			
	Acceptable ambient air concentrations (Navy Fuels JP-5)		NATICH 1991
Connecticut	(8 hour)	$2.00 \times 10^3 \mu\text{g}/\text{m}^3$	
Maryland		0.00	
Oklahoma	(24 hour)	$1.00 \times 10^4 \mu\text{g}/\text{m}^3$	
Texas	(30 minutes)	$1.00 \times 10^3 \mu\text{g}/\text{m}^3$	
Texas	(annual)	$1.00 \times 10^2 \mu\text{g}/\text{m}^3$	
	Regulations on hydrocarbon emissions (kerosene, petroleum distillates, diesel, fuel oil)	Yes	CELDS 1991
Connecticut			
Kansas			
Wisconsin			
	Regulations on volatile organic carbon emissions (VOC)	Yes	CELDS 1991
Alabama			
Arizona			
Florida			
Maine			
Maryland			
Michigan			
New Jersey			
South Carolina			
Virginia			
Texas			
Washington, DC			
Maine	Regulations on the open burning of fuel oils (kerosene)	Yes	CELDS 1991
Texas	Regulations for gas processing plants	Yes	CELDS 1991
<b>b. Water:</b>			
Alaska	Aquatic life criterion for total hydrocarbons in marine and surface waters	15 $\mu\text{g}/\text{L}$	State of Alaska 1989
	Aquatic life criterion for aromatic hydrocarbons in marine and surface waters	10 $\mu\text{g}/\text{L}$	State of Alaska 1989

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**TABLE 7-1. Regulations and Guidelines Applicable to Fuel Oils (continued)**

Agency	Description	Information	References
<b>STATE (Cont.)</b>			
Arkansas	Average or maximum allowable quantity of oil or grease discharged into surface waters	10 mg/L (average) 15 mg/L (maximum)	State of Arkansas 1991
Florida	Average or maximum allowable quantity of oil or grease discharged Class V waters (navigation, industrial use)	10 mg/L	State of Florida 1992
	Average or maximum allowable quantity of oil or grease discharged into all other surface waters	5 mg/L	State of Florida 1992
Maine	Drinking water quality guidelines and standards (fuel oil no. 2)	100 µg/L	FSTRAC 1988
Massachusetts	Maximum discharge concentration of oil or grease of petroleum origin in surface waters	15 mg/L	Commonwealth of Massachusetts 1988
Nebraska	Maximum petroleum oil concentration in surface waters	10 mg/L	State of Nebraska 1991
New York	Maximum contaminant level of kerosene in drinking water	50 µg/mL	State of New York 1989
South Dakota	Water quality standard for all petroleum products in surface waters	10 mg/L	State of South Dakota 1989
Virginia	Water quality standard for petroleum hydrocarbons in ground water	1 mg/L	Commonwealth of Virginia 1988
Wyoming	Water quality standard for all surface waters classes	10 mg/L	State of Wyoming 1990
c. Other:	Regulations on the transport of flammable/hazardous liquids (petroleum distillates or VOC)	Yes	CELDS 1991
Colorado			
Maryland			
Massachusetts			
Wisconsin			
Maine	Regulations on the disposal of special wastes including diesel fuels	Yes	CELDS 1991
California	Regulations on leaking underground fuel tanks	Yes	CELDS 1991
Wyoming	Regulations on well drilling for oil	Yes	CELDS 1991
Rhode Island	Regulations on oil pollution	Yes	CELDS 1991

<sup>a</sup>Group 2A = Probably carcinogenic to humans. This classification is not specified for the fuel oils discussed in this profile, nor for exposure to fuel oils by the general population; rather, this classification applies only to occupational exposures in petroleum refining.

<sup>b</sup>Group 2B = Possibly carcinogenic to humans

<sup>c</sup>Group 3 = Not classifiable as to its carcinogenicity to humans

AFOOSH = Air Force Office of Health and Safety; CELDS = Computer-Environmental Legislative Data System; DOT = Department of Transportation; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; IDLH = Immediately Dangerous to Life or Health; NATICH = National Air Toxics Information Clearinghouse; NIOSH = National Institute for Occupational Safety and Health; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limit; STEL = Short Term Exposure Limit; TWA = Time-Weighted Average; VOC = Volatile Organic Compounds