

7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding 2,4,6-trinitrotoluene in air, water, and other media are summarized in Table 7- 1.

ATSDR has derived an MRL of 0.0005 mg/kg/day for intermediate oral exposure to 2,4,6-trinitrotoluene (see Section 2.4). EPA (IRIS 1994) assigned 2,4,6-trinitrotoluene a reference dose (RfD) of 5.00×10^{-4} mg/kg/day with an uncertainty factor of 1,000 based on liver effects observed in dogs in a 26-week feeding study (Army 1983a).

EPA has assigned 2,4,6-trinitrotoluene a weight-of-evidence carcinogenic classification of C, which indicates that 2,4,6-trinitrotoluene is a possible human carcinogen (IRIS 1994).

The Drinking Water Equivalent Level (DWEL), a lifetime exposure at which adverse health effects would not be expected to occur, is 20 µg/L for 2,4,6-trinitrotoluene (EPA 1989b, 1994). Because of the lack of appropriate data for determination of the One-day Health Advisory and the Ten-day Health Advisory, it is suggested that the DWEL be used as a conservative estimate. The Longer-term Health Advisory for both children and adults is 20 µg/L, which is equivalent to the DWEL. The Lifetime Health Advisory is 2 µg/L.

Based on EPA Guidelines, an acceptable daily intake of 44.25 µg/L was calculated (Army 1987d). The available data for calculating water quality criteria for 2,4,6-trinitrotoluene were insufficient to meet all of the EPA guidelines requirements. However, enough information was available to calculate a reasonable estimate of the criterion maximum concentration, 557 µg/L, to protect aquatic life. The other component of the criteria, the criterion continuous concentration, needs further research. The criterion to protect human health has been estimated to be 135 µg/L, but further research is needed to confirm this value.

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to 2,4,6-Trinitrotoluene

Agency	Description	Information	References
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	PEL TWA (skin designation)	0.5 mg/m ³	OSHA 1989a (29 CFR 1910.1000); OSHA 1989b
b. Other:			
EPA OSW	Listing as a hazardous waste: Wastewater treatment sludge from the manufacturing and processing of explosives	Yes	EPA 1989c
DOT	Designated as a hazardous substance subject to requirements for packaging, labeling, and transportation TNT dry--class A explosive (high explosive) TNT wet--flammable solid	Yes	DOT 1989a (49 CFR 172.101); Appendix A); DOT 1989b
Guidelines:			
a. Air:			
ACGIH	TLV TWA (skin designation)	0.5 mg/m ³	ACGIH 1993
NIOSH	REL TWA (10 hours)	0.5 mg/m ³	NIOSH 1990
ACGIH	STEL	No data	ACGIH 1993
b. Water			
EPA ODW	Health advisories		EPA 1993
	DWEL	20 µg/L	
	One-day	20 µg/L	
	Ten-day	20 µg/L	
	Longer term	20 µg/L	
	Lifetime	2 µg/L	
	10 ⁻⁴ Cancer risk level	100 µg/L	
	MCL	No data	
	MCLG	No data	
c. Other:			
EPA	RfD (oral)	5.0x10 ⁻⁴ mg/kg/day	EPA 1993
	Carcinogenic classification	Group C ^a	EPA 1993
	Unit risk (air)	No data	IRIS 1994
	Unit risk (water)	No data	IRIS 1994
<u>STATE</u>			
Regulations and Guidelines:			
a. Air:			
	Acceptable Ambient Air Concentrations		NATICH 1992
Connecticut	(8 hours)	1.00x10 ¹ µg/m ³	
Florida-Pinellas	(8 hours)	5.00 µg/m ³	
Florida-Pinellas	(24 hours)	1.20 µg/m ³	
Nevada	(8 hours)	1.20x10 ⁻² mg/m ³	
North Dakota	(8 hours)	5.00x10 ⁻³ mg/m ³	
Oklahoma	(24 hours)	5.00x10 ¹ µg/m ³	
Texas	(30 minutes)	5.00 µg/m ³	
Texas	(Annual)	5.00x10 ⁻¹ µg/m ³	
Virginia	(24 hours)	8.30 µg/m ³	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to 2,4,6-Trinitrotoluene (continued)

Agency	Description	Information	References
b. Other:	Transportation of explosives is in accordance with the U.S. Department of Transportation hazardous materials regulations (49 CFR 171-190) and the motor carrier safety regulations (49 CFR 390-398) with some exceptions or additional requirements that vary from state to state		CELDS 1991
Alabama		Yes	
Alaska		Yes	
Arizona		Yes	
California		Yes	
Connecticut		Yes	
Colorado		Yes	
Delaware		Yes	
Florida		Yes	
Georgia		Yes	
Hawaii		Yes	
Idaho		Yes	
Indiana		Yes	
Iowa		Yes	
Louisiana		Yes	
Maryland		Yes	
Massachusetts		Yes	
Michigan		Yes	
Minnesota		Yes	
Mississippi		Yes	
Missouri		Yes	
Montana		Yes	
Nebraska		Yes	
New Jersey		Yes	
New Mexico		Yes	
North Carolina		Yes	
North Dakota		Yes	
New York		Yes	
Ohio		Yes	
Oregon		Yes	
Rhode Island		Yes	
South Dakota		Yes	
Tennessee		Yes	
Texas		Yes	
Utah		Yes	
Virginia		Yes	
Vermont		Yes	
Washington		Yes	
Washington, D.C.		Yes	
West Virginia		Yes	
Wisconsin		Yes	
Wyoming		Yes	
	Rules and regulations for air quality control and/or solid waste disposal have been established for explosives in general. The regulations vary from state to state.		CELDS 1991
Alabama	Pretreatment standards for discharge	Yes	
	Hazardous waste: thermal treatment	Yes	
Arizona	Solid waste collection	Yes	

7. REGULATIONS AND ADVISORIES

TABLE 7-1. Regulations and Guidelines Applicable to 2,4,6-Trinitrotoluene (continued)

Agency	Description	Information	References
Arkansas	Solid waste storage and collection	Yes	
Colorado	Fugitive dust	Yes	
Connecticut	Hazardous waste: thermal treatment	Yes	
Florida	Hazardous waste: thermal treatment	Yes	
Georgia	Open burning	Yes	
Illinois	Sewer discharge	Yes	
Indiana	Open burning	Yes	
Kentucky	Hazardous waste management	Yes	
Louisiana	Open burning	Yes	
Minnesota	Hazardous waste management	Yes	
New Hampshire	Open burning	Yes	
New Jersey	Hazardous waste management	Yes	
New Mexico	Hazardous waste management	Yes	
Nevada	Hazardous waste management	Yes	
North Carolina	Hazardous waste: thermal treatment	Yes	
North Dakota	Fugitive emissions	Yes	
Pennsylvania	Fugitive emissions	Yes	
South Carolina	Open burning	Yes	
Tennessee	Hazardous waste: thermal treatment	Yes	
Utah	Hazardous waste management	Yes	
Vermont	Open burning	Yes	
Virginia	Solid waste management	Yes	
Wisconsin	Open burning and malodorous emissions	Yes	
	Explosive control laws regulate storage, manufacture, and use (regulations vary from state to state)		CELDS 1991
Alaska		Yes	
California		Yes	
Connecticut		Yes	
Georgia		Yes	
Hawaii		Yes	
Indiana		Yes	
Iowa		Yes	
Kansas		Yes	
New Jersey		Yes	
Massachusetts		Yes	
Nebraska		Yes	
New Jersey		Yes	
Oklahoma		Yes	
Oregon		Yes	
Washington, D.C.		Yes	
West Virginia		Yes	
Wisconsin		Yes	

*Group C=Possible human carcinogen

ACGIH = American Conference of Governmental Industrial Hygienists; DOT = Department of Transportation; DWEL = Drinking Water Equivalent Level; EPA = Environmental Protection Agency; NIOSH = National Institute for Occupational Safety and Health; ODW = Office of Drinking Water; OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Waste; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limits; RfD = Reference Dose; TLV = Threshold Limit Value; TNT = 2,4,6-Trinitrotoluene; TWA = Time-Weighted Average

7. REGULATIONS AND ADVISORIES

Under the Hazardous Materials Transportation Act, 2,4,6-trinitrotoluene is designated as a hazardous substance subject to special requirements for packaging, labeling, and transportation as a result of its explosive/flammable properties (DOT 1989a, 1989b).

