

4. PRODUCTION, IMPORT/EXPORT, USE, AND DISPOSAL

4.1 PRODUCTION

Tables 4-1 and 4-2 list the facilities in each state that manufacture or process 2,4-DNT and 2,6-DNT, respectively; the intended use, and the range of maximum amounts of 2,4- and 2,6-DNT that are stored on site. There are currently 3 facilities that produce or process 2,4-DNT in the United States: First Chemical Corporation in Pascagoula, MS; U.S. Army Radford Army in Radford, VA; and Bayer Corporation in New Martinsville, WV. There is one facility that produces or processes 2,6-DNT in the United States: Bayer Corporation in New Martinsville, WV. The data listed in Tables 4-1 and 4-2 are derived from the Toxics Release Inventory (TR196 1998). Only certain types of facilities were required to report. Therefore, this is not an exhaustive list.

The chemicals 2,4- and 2,6-DNT are generally produced as a mixture called Tg-DNT, which contains approximately 76.5% 2,4-DNT and 18.8% 2,6-DNT (with the remainder consisting of other isomers and minor contaminants such as TNT and mononitrotoluenes) (HSDB 1998). This mixture is commercially prepared by the nitration of toluene with concentrated sulfuric and nitric acid (Etnier 1987).

4.2 IMPORT/EXPORT

No data describing import or export activities for 2,4- or 2,6-DNT were located. Imports of nitrobenzenes and nitrotoluenes into the United States for 1994 totaled 1,676,582 kg (NTDB 1996).

4.3 USE

The most commercially important use of DNT is as a chemical intermediate in the production of toluene diisocyanate, a precursor to polyurethane polymers (HSDB 1998). It has been estimated that 99% of all DNT produced is used for this purpose (CMR 1983). Additionally, DNT is used in the production of TNT, and as a waterproofing, plasticizing, and gelatinizing agent in explosives (HSDB 1998). DNT is also used as an intermediate in the production of dyes and as a modifier for smokeless powders in the munitions industry (HSDB 1998). 2,4-DNT is used in the air bags of automobiles (Ellenhorn 1997).

TABLE 4-1. Facilities that Manufacture or Process 2,4-Dinitrotoluene

FACILITY	LOCATION ^a	RANGE OF MAXIMUM AMOUNTS ON SITE IN POUNDS	ACTIVITIES AND USES
FIRST CHEMICAL CORP.	PASCAGOULA , MS	1,000 - 9,999	PRODUCE , BYPRODUCT
U.S. ARMY RADFORD ARMY	RADFORD , VA	100,000 - 999,999	FORMULATION COMPONENT
BAYER CORP.	NEW MARTINSVILLE , WV	100,000 - 999,999	PRODUCE , ON-SITE USE/PROCESSING , REACTANT

Source: TRI96 1998

^a Post Office state abbreviations used

TABLE 4-2. Facilities that Manufacture or Process 2,6-Dinitrotoluene

FACILITY	LOCATION ^a	RANGE OF MAXIMUM AMOUNTS ON SITE	ACTIVITIES AND USES
		IN POUNDS	
BAYER CORP.	NEW MARTINSVILLE , WV	100,000 - 999,999	PRODUCE , ON-SITE USE/PROCESSING , REACTANT

Source: TRI96 1998

^aPost Office state abbreviations used

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4.4 DISPOSAL

2,4-DNT and 2,6-DNT are listed as toxic substances under Section 313 of the Emergency Planning and Community Right to Know Act (EPCRA) under Title III of the Superfund Amendments and Reauthorization Act (SARA) (EPA 1995). Disposal of wastes containing 2,4-DNT and 2,6-DNT is controlled by a number of federal regulations (see Chapter 7).

Only limited information is available regarding the appropriate disposal of DNT. NIOSH recommends small quantities be swept onto paper or other suitable material and incinerated in a suitable combustion chamber. Larger quantities should be reclaimed; if this is not practical, then they should be dissolved in fuel oil and atomized in a suitable combustion chamber (HSDB 1998). DNT has also been proposed as a potential candidate for rotary kiln incineration at 820-1,600°C or fluidized bed incineration at 450-980°C, with residence times of seconds for gases and liquids and longer for solids (HSDB 1998).