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- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances
- **Standard Number:** 1910.1050 App B
- **Title:** Substance Technical Guidelines, MDA

I. IDENTIFICATION

A. Substance identification.

1. Synonyms: CAS No. 101-77-9. 4,4'-methylenedianiline; 4,4'-methylenebisaniiline; methylenedianiline; dianilinomethane.
2. Formula: C(13)H(14N2)

II. PHYSICAL DATA

1. Appearance and Odor: White to tan solid; amine odor
2. Molecular Weight: 198.26
3. Boiling Point: 398-399 degrees C at 760 mm Hg
4. Melting Point: 88-93 degrees C (190-100 degrees F)
5. Vapor Pressure: 9 mmHg at 232 degrees C
6. Evaporation Rate (n-butyl acetate = 1): Negligible
7. Vapor Density (Air=1): Not Applicable
8. Volatile Fraction by Weight: Negligible
9. Specific Gravity (Water=1): Slight
10. Heat of Combustion: -8.40 kcal/g
11. Solubility in Water: Slightly soluble in cold water, very soluble in alcohol, benzene, ether, and many organic solvents.

III. FIRE, EXPLOSION, AND REACTIVITY HAZARD DATA

1. Flash Point: 190 degrees C (374 degrees F) Setaflash closed cup
2. Flash Point: 226 degrees C (439 degrees F) Cleveland open cup
3. Extinguishing Media: Water spray; Dry Chemical; Carbon dioxide.
4. Special Fire Fighting Procedures:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

5. Unusual Fire and Explosion Hazards:

Fire or excessive heat may cause production of hazardous decomposition products.

IV. REACTIVITY DATA

1. Stability: Stable
2. Incompatibility: Strong oxidizers
3. Hazardous Decomposition Products:

As with any other organic material, combustion may produce carbon monoxide. Oxides of nitrogen may also be present.

4. Hazardous Polymerization: Will not occur.

V. SPILL AND LEAK PROCEDURES

1. Sweep material onto paper and place in fiber carton.
2. Package appropriately for safe feed to an incinerator or dissolve in compatible waste solvents prior to incineration.
3. Dispose of in an approved incinerator equipped with afterburner and scrubber or contract with licensed chemical waste disposal service.
4. Discharge treatment or disposal may be subject to federal, state, or local laws.
5. Wear appropriate personal protective equipment.

VI. SPECIAL STORAGE AND HANDLING PRECAUTIONS

- A. High exposure to MDA can occur when transferring the substance from one container to another. Such operations should be well ventilated and good work practices must be established to avoid spills.
- B. Pure MDA is a solid with a low vapor pressure. Grinding or heating operations increase the potential for exposure.
- C. Store away from oxidizing materials.
- D. Employers shall advise employees of all areas and operations where exposure to MDA could occur.

VII. HOUSEKEEPING AND HYGIENE FACILITIES

- A. The workplace should be kept clean, orderly, and in a sanitary condition.

The employer should institute a leak and spill detection program for operations involving MDA in order to detect sources of fugitive MDA emissions.

- B. Adequate washing facilities with hot and cold water are to be provided and maintained in a sanitary condition. Suitable cleansing agents should also be provided to assure the effective removal of MDA from the skin.

VIII. COMMON OPERATIONS

Common operations in which exposure to MDA is likely to occur include the following: Manufacture of MDA; Manufacture of Methylene diisocyanate; Curing agent for epoxy resin structures; Wire coating operations; and filament winding.

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