



Product Safety Summary Sheet

DuPont™ p-Phenylenediamine

Chemical Identification, Product Identification or Common Name:

CAS number (EC inventory): 106-50-3

CAS name: 1,4-Benzenediamine

EC Number: 203-404-7

IUPAC name: 1,4-Benzenediamine

Product Uses and Applications:

This chemical or product is generally used in the following manner:

- Industrial Processing
- Used as a precursor to aramid polymers and fibers and other resins.

Physical Properties of the Chemical or Product:

p-Phenylenediamine (PPD) is a solid at room temperature which has a slight aromatic odor. p-Phenylenediamine has a melting point of 142 °C (288 °F) and a boiling point of 274 °C (525 °F) (at 1,013 hPa). p-Phenylenediamine is a strong oxidizing agent.

Exposure Potential: There are no significant exposures to PPD based on identified uses.

Workplace exposure: Potential worker exposure would likely occur via the dermal or inhalation routes. Because of the toxicity of the substance, closed operations are designed and utilized to prevent exposures. Therefore no peak exposures are anticipated for normal operations.

Maintenance and transfer activities require Personal Protective Equipment (PPE) when there is potential for exposure. The only potential for dermal exposure is during transfer of the solid substance. Since PPD is a skin sensitizer this activity should be as automated as possible to

minimize potential dermal exposure. Chemical resistant gloves, when combined with extensive training and procedural controls, will prevent dermal exposure. PPD is a solid and will be unable to penetrate the chemical resistant gloves due to the physical barrier.

Workers should follow the recommended safety measures contained within the Safety Data Sheet (SDS) and on any product packaging. Employees should be trained in the appropriate work processes and safety equipment to limit exposure to chemical substances. Occupational use of this substance is considered to be safe provided the recommended safety measures in the SDS are followed.

Consumer exposure: There is no potential exposure to the consumer for this chemical manufactured by DuPont.

Environmental exposure: Exposure to the environment is not expected per the environmental risk assessments specific to the usage of PPD either as a monomer or as a precursor for other organic chemicals. PPD disposal must be in compliance with local waste regulations.

Health Information:

Note: The information contained in this section may be useful to someone handling the pure undiluted substance such as a manufacturer or transporter. Consumers are not likely to come in contact with the pure substance. For more information on health hazards and recommended protective equipment, please refer to the SDS.

Exposures may affect human health as follows:

| Effect Assessment | Result |
|--------------------------------------|--|
| Acute Toxicity | Oral: Moderately toxic by ingestion. Dermal: Moderately toxic via exposure to skin. Inhalation: Moderately toxic by inhalation. |
| Irritation | Skin: May cause skin irritation, discomfort, itching, redness, or swelling. Eye: Causes eye irritation; may cause irritation with discomfort, pain, tearing, swelling, redness, or temporary visual impairment. Respiratory tract: may cause irritation of the respiratory system. |
| Sensitization | May cause an allergic skin reaction in susceptible persons by skin contact, with itching, rash, or swelling. |
| Mutagenicity | Based on available data, PPD is not classified. |
| Carcinogenicity | Based on available data, not considered carcinogenic. |
| Toxicity after repeated exposure | No significant toxicity anticipated as a result of repeated exposures. |
| Toxicity to Reproduction/Development | Based on available data, not classified. |

Environmental Information:

Note: The information contained in this section is intended to provide brief and general information of this substance's environmental impact. The results in the table below refer to testing performed with the non-formulated, undiluted substance. The data does not replace the data given in the SDS. For more information and recommended protective measures please refer to the SDS.

| Effect Assessment | Result |
|-------------------------------|--|
| Aquatic Toxicity | Very toxic to aquatic life with long lasting effects. |
| Persistence and degradability | Not readily biodegradable. Potentially persistent based on the biodegradation criteria. |
| Bioaccumulation potential | Not expected to bioaccumulate. |

Risk Management:**Workplace Management:**

Risk management measures for industrial site use include containment through engineering controls and personal protective equipment (PPE). Always refer to the Safety Data Sheet (SDS) for guidance on the appropriate personal protective equipment to be used.

The substance is of no immediate concern to workers. But, a full face mask and other appropriate PPE should always be used for any operations that might result in exposure to workers.

Consumer Risk Management:

Consumer exposure to p-Phenylenediamine is unlikely. Avoid inhalation or skin contact with p-Phenylenediamine.

Regulatory Information:

Always refer to the Safety Data Sheet (SDS) for guidance on regulatory restrictions that may govern the manufacture, sale, transportation, use and/or disposal of this chemical or product. Regulations may vary by region, country, state, county, city, or local government.

First Aid Information:

For all First Aid or Emergency information, consult the Safety Data Sheet (SDS).

Information Sources:

Data is compiled from a variety of sources, including publicly available documents, internal data and other sources such as, but not limited to, Chemical Safety Reports and Safety Data Sheets (SDS).

Contact Information:

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