**DIPHENYLAMINE**

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**SUBSTANCE IDENTIFICATION**

**SUBSTANCE**: **DIPHENYLAMINE**

**CAS-NUMBER**: 122-39-4

**TRADE NAMES/SYNONYMS**: N-[(DIPHENYLAMINO)METHYL]PHENYLAMINE, N-(DIPHENYLAMINO)BENZENE, N-(DIPHENYLAMINOMETHYL)BENZENE, N-DIPHENYLAMINE, N-PHENYL- N-DIPHENYLAMINE, N-PHENYLBENZAMINE, N-[(2,6-DINITROPHENYL)AMINO]BENZENE

**CHEMICAL FAMILY**: AMINE, AROMATIC

**MOLECULAR FORMULA**: (C₆H₅-NH)₂ C₆H₄-NH₂

**MOLECULAR WEIGHT**: 168.23

**ECERCA RATING**: CLASS 0-3, HEALTH 2, FIRE 1, REACTIVITY 0, PERSISTENCE 2

**COMPONENTS AND CONTAMINANTS**

**COMPONENT**: DIPHENYLAMINE

**CAS#**: 122-39-4

**PERCENT**: 100.0

**OTHER CONTAMINANTS**: NONE

**EXPOSURE LIMITS**:
- DIPHENYLAMINE: 10 mg/m³ OSHA TWA
- 10 mg/m³ ACGIH TWA
- 10 mg/m³ NIOSH RECOMMENDED TWA


**PHYSICAL DATA**

**DESCRIPTION**: COLORLESS TO GRAYISH, MONOCRYSTALLIC LEAVES WITH A FLORAL ODOR.

**BOILING POINT**: 576 F (302 C) **MELTING POINT**: 129-131 F (54-55 C)

**SPECIFIC GRAVITY**: 1.160 **VAPOR PRESSURE**: 1 MM @ 138 C

**SOLUBILITY IN WATER**: INSUSLABLE **ODOR THRESHOLD**: 0.05 PPM

**VAPOR DENSITY**: 5.82

**SOLVENT SOLUBILITY**: SOLUBLE IN ALCOHOL, ETHER ACETONE, BENZENE, CARBON TETRACHLORIDE, GLACIAL ACETIC ACID, ETHYL ACETATE, CARBON TETRACHLORIDE, PYRIDINE.

**PHOTOSENSITIVITY**: None

**HEALTH EFFECTS AND FIRST AID**

**INHALATION**: DIPHENYLAMINE
- **IRRITANT**: ACUTE EXPOSURE - EXPOSURE TO DUST MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT AND SHALLOW RESPIRATION. SYSTEMIC EFFECTS MAY OCCUR AS DESCRIBED IN ACUTE INGESTION.
- **ALLERGIC**: CHRONIC EXPOSURE - INDUSTRIAL POISONING RESULTED IN BLADDER SYMPTOMS, TACHYCARDIA, AND HYPERTENSION. IN ADDITION, CHRONIC EXPOSURE MAY CAUSE WEIGHT LOSS, ALTERATION TO THE SWEAT, VERSATILE, AND DAMAGE THE SYSTEM AND BONE MARROW. CHANGES IN THE LIVER, SPLEEN, AND KIDNEYS HAVE BEEN REPORTED IN ANIMALS.

**FIRST AID**: IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

**SKIN CONTACT**: DIPHENYLAMINE
- **IRRITANT**: ACUTE EXPOSURE - MAY CAUSE IRRITATION WITH ECZEMA. MAY BE ABSORBED THROUGH THE SKIN AND RESULT IN SYSTEMIC TOXICITY AS DETAINED ACUTE INGESTION.
- **ALLERGIC**: CHRONIC EXPOSURE - REPEATED OR PROLONED EXPOSURE TO IRRITANTS MAY CAUSE DERMATITIS. SYSTEMIC EFFECTS MAY OCCUR AS DESCRIBED IN CHRONIC INHALATION.

**FIRST AID**: REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

**EYE CONTACT**: DIPHENYLAMINE
- **IRRITANT**: ACUTE EXPOSURE - CONTACT WITH DUST MAY PRODUCE IRRITATION AND POSSIBLE CORNEAL DAMAGE.

**FIRST AID**: WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALY LIFTING LOWER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION**: DIPHENYLAMINE
- **IRRITANT**: ACUTE EXPOSURE - MAY CAUSE NAUSEA, VOMITING, SHALLOW RESPIRATION, DIZZINESS, HEADACHE, TACHYCARDIA, HYPERTENSION, BLADDER SYMPTOMS, AND CENTRAL NERVOUS SYSTEM DEPRESSION. ORAL ADMINISTRATION TO ANIMALS RESULTED IN PERSISTENT ANOREXIA, HYPERPYREXIA, DIARRHEA, EMACIATION, GENERAL DEBILITY, AND DEATH. PREVIOUSLY FROM PROTRACTED GASTROENTERITIS, AND RENAL CHANGES. DEATHS FROM A SINGLE LETHAL DOSE WERE DELAYED TWO TO THREE WEEKS.

**FIRST AID**: INGESTION MAY CAUSE EFFECTS AS DESCRIBED IN ACUTE INHALATION. THESE EFFECTS ON THE LUNGS, KIDNEYS, HEART, AND GASTROINTESTINAL TRACT HAVE BEEN REPORTED IN ANIMALS. ADMINISTRATION TO PREGNANT RATS PRODUCED A POLYCYSTIC KIDNEY IN OFFSPRING. THERE IS EVIDENCE THAT PURIFIED DIPHENYLAMINE IS NOT THE NEPHROTOXIC COMPONENT OF COMMERICAL DIPHENYLAMINE. INSTEAD, A COMPONENT RESPONSIBLE FOR THESE EFFECTS, AN INCREASE IN HEINZ BODY FORMATION HAS RESULTED FROM FEEDING RATS AND MICE HIGH DOSES OF DIPHENYLAMINE.

**FIRST AID**: IF THE PERSON IS CONSCIOUS AND NOT CONVULSING, INDUCE EMESIS BY GIVING SYRUP OF IPPECAC FOLLOWED BY WATER. (IF VOMITING OCCURS KEEP THE HEAD BELOW THE HIPS TO PREVENT ASPIRATION). IN 20 MINUTES IF NOT EFFECTIVE.
INITIALLY, GIVE ACTIVATED CHARCOAL IN PATIENTS WITH DEPRESSED RESPIRATION OR IF EMESIS IS NOT PRODUCED. PERFORM GASTRIC LAVAGE CAUTIOUSLY (DREISBACH, HARRISON, TOP OF POISONING, 12TH ED.). TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GASTRIC LAVAGE SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

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REACTIVITY

STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
DIPYRIDAMOLE
HEXACHLOROETHANE: VIOLENT REACTION WITH POSSIBLE IGNITION.
OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.
TRICHLORETHANE: VIOLENT REACTION WITH POSSIBLE IGNITION.
SEE ALSO AMINES.

AMINES:
ACROLEIN: EXOTHERMIC POLYMERIZATION
CALCIUM HYPOCHLORITE: FORMATION OF EXPLOSIVE CHLORAMINE
MALIC ANHYDRIDE: EXPLOSIVE DECOMPOSITION
NITROXIDE: EXPLOSIVE REACTION
SODIUM HYPOCHLORITE: FORMATION OF EXPLOSIVE CHLORAMINE
TRIP-ISO-BUTYL ALCOHOL: VIOLENT REACTION.

DECOMPOSITION
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON AND NITROGEN.

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

**STORAGE**

STORE IN A COOL, DRY PLACE PROTECTED AGAINST LIGHT.

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

CONDITIONS TO AVOID

MAY BURN BUT DOES NOT IGNITE READILY. AVOID CONTACT WITH STRONG OXIDIZERS, EXCESSIVE HEAT, SPARKS, OR OPEN FLAME.

SPILL AND LEAK PROCEDURES

OCURRENTAL SPILL
STOP LEAK IF YOU CAN DO IT WITHOUT RISK. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CLEAN, DRY CONTAINERS FOR LATER DISPOSAL. KEEP ERRONEOUS PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION AND/OR GENERAL DILUTION VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS.

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION. THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORKPLACE. THE RESPIRATOR MUST BE SEATED ON THE SPECIFIC OPERATION. MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND MUST BE JOINTLY APPROVED BY THE NIOSH MSHA INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY

ANY CHEMICAL CARTRIDGE RESPIRATOR WITH FULL FACEPIECE AND ORGANIC VAPOR CARTRIDGE(S) IN COMBINATION WITH EITHER DISJET OR MIST FILTER.

ANY OTHER CHEMICAL CARTRIDGE RESPIRATOR WITH FULL FACEPIECE AND ORGANIC VAPOR CARTRIDGE(S) IN COMBINATION WITH A HIGH-EFFICIENCY PARTICULATE FILTER.