

# SAFETY DATA SHEET



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## 24-Hour Emergency Number (CHEMTREC)

USA: 800-424-9300  
International: 703-527-3887

All non-emergency numbers should be directed  
to Customer Service at 800-PURITY1

## ANILINE

SDS No. M0016

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Aniline

Synonyms: Aminobenzene; Aniline Oil; Phenylamine

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

### 2. HAZARDS IDENTIFICATION



#### **Classification:**

Flammable Liquids: GHS Category 4

Acute Toxicity, Oral: GHS Category 3

Acute Toxicity, Inhalation: GHS Category 3

Acute Toxicity, Dermal: GHS Category 3

Eye Damage: GHS Category 1

Respiratory Sensitization: GHS Category 1

Germ Cell Mutagenicity: GHS Category 2

Carcinogenicity: GHS Category 2

Acute Aquatic Toxicity: GHS Category 1

#### **Label Elements**

Signal Word: DANGER!

#### Hazard Statements:

H227 – Combustible liquid and vapor.

H301 – Toxic if swallowed.

H312 – Harmful in contact with skin.

H319 – Causes serious eye irritation.

H331 – Toxic if inhaled.

H402 – Harmful to aquatic life

#### Precautionary Statements:

P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 – If SWALLOWED: Immediately call or POISON CENTER or a doctor/physician.

Clear focus. Consistent results. Complete confidence.

P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P312 – If inhaled: Call a POISON CENTER or doctor/physician if you feel unwell.

P410 – Protect from sunlight.

### Emergency Overview

Causes severe digestive and respiratory tract irritation. Causes severe eye irritation and possible eye injury. Causes skin irritation. Harmful if swallowed or absorbed through the skin. May cause methemoglobinemia and cyanosis. May cause central nervous system and damage. May cause liver and kidney damage. Possible sensitizer. May cause fetal effects. Hygroscopic. Light sensitive. Combustible liquid. Dangerous to the environment. Target Organs: Kidneys, central nervous system, liver, spleen, cardiovascular system, red blood cells, bone marrow, and bladder.

### HMIS Rating:

Health – 3\* Flammability – 2 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Aniline	62-53-3	>99%	Yes

## 4. FIRST-AID MEASURES

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Ingestion:** Get medical help immediately. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward. If victim is conscious and alert, give 2-4 cupfuls of water. Never give anything by mouth to an unconscious person.

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately. Wash clothes before reuse. Destroy contaminated shoes.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Do not allow victim to rub or keep eyes closed. Get medical attention immediately.

**Notes to Physician:** Absorption of this product into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Moderate degrees of cyanosis need to be treated only by supportive measures: bed rest and oxygen inhalation. Cleansing of the entire contaminated area of the body is of utmost importance. Do not administer alcohol in any form. Individuals with liver or kidney disorders, impaired cardiovascular status, or a history of alcoholism may be more susceptible to the effects of this product. Effects may be delayed. If cyanosis is severe, intravenous injection of Methylene blue, 1mg/kg of body weight may be of value. **Antidote:** Methylene blue, alone or in combination with oxygen is indicated as a treatment in nitrite induced methemoglobinemia.

## 5. FIRE FIGHTING MEASURES

**Flammability:** Combustible liquid (GHS Category 4)

**Auto-ignition Temperature:** 615° C (1139° F)

**Flash Point:** 70° C (158° F)

**Flammable Limits:** Lower Limit – 1.3 vol %, Upper Limit – 20.0 vol %

**Products of Combustion:** May decompose into irritating and highly toxic gases under fire conditions (nitrogen oxides, carbon monoxide, and carbon dioxide).

**Specific Fire Hazards:** As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

Specific Explosion Hazards: None.

Fire Fighting Media: Use water spray, dry chemical, alcohol-resistant foam, or carbon dioxide

National Fire Protective Association: Health - 3, Flammability - 2, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

## 6. ACCIDENTAL RELEASE MEASURES

Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

## 7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist. Use corrosion-resistant transfer equipment when dispensing.  
Storage: Keep away from heat, sparks, flames, and contact with oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use appropriate protective gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 2 ppm TWA; skin - potential for cutaneous absorption

NIOSH – 100 ppm IDLH

OSHA Final PELs – 5 ppm TWA; 19 mg/m<sup>3</sup> TWA

OSHA Vacated PELs: 2 ppm TWA; 8 mg/m<sup>3</sup> TWA

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Oily, colorless liquid.

Odor: amine-like odor

Molecular Formula: C<sub>6</sub>H<sub>5</sub>NH<sub>2</sub>

Molecular Weight: 93.13

Auto-ignition Temperature: 615° C (1139° F)

Flash Point: 70° C (158° F)

Flammable Limits: Lower Limit – 1.3 vol %, Upper Limit – 20.0 vol %

pH: 8.1

Boiling Point: 184° C @ 760 mm Hg

Freezing/Melting Point: -6° C

Decomposition Temperature: Not available

Specific Gravity: 1.0216 g/cm<sup>3</sup>

Vapor Density (Air=1): 3.2

Vapor Pressure: 0.49mm Hg @ 20° C.

Evaporation Rate (Butyl acetate = 1): <1

Viscosity: 4.435 cP @ 20° C.

Solubility: 0.3 g/L in water (20° C).

Conductivity (25°C): Conductive; Conductivity =  $2.4 \times 10^6$  pS/m; Dielectric Constant = 6.89; Relaxation Time Constant =  $2.5 \times 10^{-5}$  seconds

## 10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures. Volatile in steam. Sensitive to light. May discolor on exposure to air and light.

Conditions to Avoid: Incompatible materials, light, ignition sources, excess heat, exposure to moist air or water.

Incompatibility With Various Substances: Strong oxidizing agents, strong acids, bases, aluminum, fluorine, formaldehyde, iron, nitric acid, silver perchlorate, sodium peroxide, sulfuric acid, zinc, hydrogen peroxides, ozone, acid anhydrides, chlorosulfonic acid, oleum, perchromates, nitromethane, dibenzoyl peroxide, benzenediazonium-2-carboxylate, boron trichloride, tetranitromethane, trichloronitromethane, diisopropyl peroxydicarbonate, hexachloromelamine, peroxomonosulfuric acid, albumin, iron salts, perchloric acid, nitrobenzene, alkalis, moisture, potassium peroxide, glycerine, fuming nitric acid, N-chloro compounds, N-bromoimides (e.g. n-bromosuccinimide), peroxydisulfuric acid, nitrosyl fluoride, toluene diisocyanate.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides, irritating and toxic fumes and gases.

Hazardous Polymerization: Will not occur..

## 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Effects may be delayed. Causes respiratory tract irritation. May cause methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, tachycardia, dyspnea (labored breathing), and death. Aspiration may lead to pulmonary edema.

INGESTION HAZARD: Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause effects similar to those of acute inhalation. May cause central nervous system depression, convulsions, coma, and possible death due to respiratory paralysis. May cause cardiac effects such as heart blocks, arrhythmias, shock and possible death due to cardiovascular collapse. Alcohol can intensify the ability of aniline to induce methemoglobinemia.

SKIN CONTACT HAZARD: Causes moderate skin irritation. Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

EYE CONTACT HAZARD: Causes severe eye irritation. May cause lacrimation (tearing), blurred vision, and photophobia. May cause chemical conjunctivitis and corneal damage.

Chronic Exposure Hazards: May cause liver and kidney damage. May cause fetal effects. Repeated exposure may cause sensitization dermatitis. Chronic exposure may cause hemolysis of the red blood cells followed by stimulation of the bone marrow. Laboratory experiments have resulted in mutagenic effects. May cause cyanosis - a blue-gray coloring of the skin and lips caused by a lack of oxygen. Animal studies have reported the development of tumors.

Animal Toxicity:

Dermal, guinea pig: LD50 = 1290 mg/kg;

Draize test, rabbit, eye: 102 mg Severe;

Draize test, rabbit, eye: 20 mg/24H Moderate;

Draize test, rabbit, skin: 20 mg/24H Moderate;

Inhalation, mouse: LC50 = 175 ppm/7H;

Oral, mouse: LD50 = 464 mg/kg;

Oral, rat: LD50 = 250 mg/kg;

Skin, rabbit: LD50 = 820 uL/kg;

Skin, rat: LD50 = 1400 mg/kg;

**Carcinogenicity:** ACGIH: A3 – animal carcinogen; NIOSH: potential occupational carcinogen; IARC: IARC Group 3 – not classifiable; California: carcinogen, initial date 1/1/90

**Epidemiology:** Oral, rat: TDLo = 11 gm/kg/29W-C (Tumorigenic - neoplastic by RTECS criteria - Kidney, Ureter, Bladder - tumors).; Oral, rat: TD = 72800 mg/kg/2Y-C (Tumorigenic - neoplastic by RTECS criteria - Blood - tumors).

**Teratogenicity:** Oral, mouse: TDLo = 4480 mg/kg (female 6-13 day(s) after conception) Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

**Reproductive Effects:** No information available.

**Mutagenicity:** DNA damage: Intraperitoneal, rat = 105 mg/kg.; Sister Chromatid Exchange: Rat, Liver = 200 umol/L.; Micronucleus Test: Intraperitoneal, mouse = 50 mg/kg.; Mutation in Microorganisms: Mouse, Lymphocyte = 500 umol/L.; Specific Locus Test: Mouse, Lymphocyte = 500 mg/L.; Morphological Transformation: Mouse, Fibroblast = 800 ug/L; Cytogenetic analysis: Hamster, Ovary = 444 mg/Lskin, mouse = 79279 ug/kg; Cytogenetic Analysis: Hamster, ovary = 10 mmol/L

**Neurotoxicity:** No information available.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity:

Bacteria: Phytobacterium phosphoreum: EC50 = 425-488 mg/L; 5,15 min; Microtox test at 14.9-15.1°C

Fea Daphnia: LC50 = 0.10 mg/L; 48 Hr; Unspecified

Rainbow trout: LC50 = 8.2 mg/L; Max. exposure = 7 days; Unspecified

Bluegill/Sunfish: 1020 ppm; 1 Hr; Unspecified No data available.

**Environmental Fate:** If released into water it will primarily be lost due to biodegradation and in surface waters, photooxidation (half-life of the order of days). It will not bioconcentrate in fish. If spilled on land it will be lost by a combination of biodegradation, oxidation and chemical binding to components of soil. If released into air, aniline will photodegrade (estimated half-life 3.3 hr). Dangerous to aquatic life in high concentrations.

## 13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is U012 (ignitable waste, toxic waste) under 40 CFR 261.33.

## 14. TRANSPORT INFORMATION

### US DOT, IATA, IMO

Proper Shipping Name: Aniline

Hazard Class: 6.1

UN Number: UN1547

Packing Group: II

## 15. REGULATORY INFORMATION

### US Federal Regulations:

TSCA: CAS# 62-53-3 is listed on the TSCA Inventory.

Health and Safety Reporting List: CAS# 62-53-3 is not listed.

Chemical Test Rules: CAS# 62-53-3 is not listed.

Section 12b: Not listed.



TSCA Significant New Use Rule: Does not have an SNUR under TSCA.  
CERCLA Hazardous Substances: CAS# 62-53-3 – 5000 lb, 2270 kg final RQ  
SARA Section 302: CAS# 62-53-3 – 1000 lb, 454 kg TPQ  
SARA Codes: CAS# 62-53-3 – acute, chronic, flammable  
Section 313: Aniline (CAS# 62-53-3) is subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.  
Clean Air Act CAS# 62-53-3 is listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.  
Clean Water Act: CAS# 62-53-3 is listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.  
OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 62-53-3 is found on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts  
California Prop 65: **The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:** WARNING: This product contains Aniline, a chemical known to the state of California to cause cancer.  
California No Significant Risk Level: CAS# 62-53-3: 100 ug/day NSRL

Canada:

DSL/NDL: CAS# 62-53-3 is listed on Canada's DSL list.  
WHMIS: This product has a WHMIS classification of B3, D1A, D2A. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.  
Ingredient Disclosure List: CAS# 62-53-3 is listed on Canada's Ingredient Disclosure List.

DSCL (EEC):

Hazard Symbols: T, N  
Risk Phrases: R20/21/22 – Harmful by inhalation, in contact with skin, and if swallowed; R40 – Limited evidence of a carcinogenic effect; R40/23/24/25 – Toxic : danger of serious damage to health by prolonged exposure through inhalation, contact with skin and if swallowed.  
Safety Phrases: S28 – After contact with skin wash immediately, S36/37 – Wear suitable protective clothing and gloves; S45 – In case of accident, or if you feel unwell, seek medical advice immediately (show label where possible); S61 – Avoid release to the environment, see special instruction of safety documents.  
WGK (Water Danger/protection): CAS# 62-53-3: 2

## 16. OTHER INFORMATION

Originally Prepared: 5/21/2007

Last Revised: 12/12/2011 – Converted to GHS format.

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