

Material Safety Data Sheet

Aniline

ACC# 01530

Section 1 - Chemical Product and Company Identification

MSDS Name: Aniline

Catalog Numbers: AC158190010, AC158190050, AC221730010, AC221732500, AC423420010, AC423420050, AC423425000, S75042, A740I-4, A740I-500, A740IJ500, S79905

Synonyms: Aminobenzene; Aniline oil; Benzenamine; Phenylamine.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

| CAS# | Chemical Name | Percent | EINECS/ELINCS |
|---------|---------------|---------|---------------|
| 62-53-3 | Aniline | 99 | 200-539-3 |

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless to brown liquid. Flash Point: 70 deg C.

Warning! Causes severe eye irritation and possible eye injury. Harmful if swallowed, inhaled, or absorbed through the skin. Causes skin and respiratory tract irritation. May cause allergic skin reaction. Impairs the oxygen carrying capacity of the blood. **Combustible liquid and vapor.** May cause nervous system effects. May cause methemoglobinemia. May cause liver and kidney damage. Hygroscopic (absorbs moisture from the air).

Target Organs: Blood, kidneys, liver, spleen, respiratory system, eyes, nervous system, skin.

Potential Health Effects

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

Skin: Causes skin irritation. Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Vapors are readily absorbed through the skin.

Ingestion: Harmful if swallowed. Aniline acts through an intermediate to change hemoglobin to methemoglobin. In one subject, 65 mg of aniline increased the methemoglobin level by 16% within 2 hours. Intense methemoglobinemia may lead to asphyxia severe enough to injure the cells of the central nervous system. Pathologic findings in acute fatalities from aniline include chocolate color of the blood; injury to the kidney, liver and spleen; and hemolysis. Alcohol can intensify the ability of aniline to induce methemoglobinemia.

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. Methemoglobinemia is characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown blood. Inhalation of aniline causes anoxia due to the formation of methemoglobin.

Chronic: May cause liver and kidney damage. Repeated exposure may cause sensitization dermatitis. Chronic exposure may cause hemolysis of the red blood cells followed by stimulation of the bone marrow. 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.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

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.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Combustible liquid and vapor.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: 70 deg C (158.00 deg F)

Autoignition Temperature: 615 deg C (1,139.00 deg F)

Explosion Limits, Lower:1.3 vol %

Upper: 11 vol %

NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Provide ventilation. Approach spill from upwind. Control runoff and isolate discharged material for proper disposal. Use water spray to cool and disperse vapors and protect personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat and flame. Avoid breathing vapor or mist. Do not get in eyes. Avoid contact with skin and clothing.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Poison room locked. Keep away from acids. Material darkens in color on storage. Store protected from moisture. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|---------------|---|--------------|-------------------------------------|
| Aniline | 2 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route | 100 ppm IDLH | 5 ppm TWA; 19 mg/m ³ TWA |

OSHA Vacated PELs: Aniline: 2 ppm TWA; 8 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: oily - colorless to brown

Odor: amine-like - characteristic odor

pH: 8.1 (0.2M soln)

Vapor Pressure: 0.49 mm Hg @ 25 deg C

Vapor Density: 3.3 (air=1)

Evaporation Rate: <1 (butyl acetate=1)

Viscosity: 4.435 cp @ 20 deg C

Boiling Point: 184 deg C @ 760 mmHg

Freezing/Melting Point: -6 deg C

Decomposition Temperature: Not available.

Solubility: Slightly soluble.

Specific Gravity/Density: 1.0217 @ 20°C

Molecular Formula: C₆H₇N

Molecular Weight: 93.13

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. May discolor on exposure to air and light.

Conditions to Avoid: Light, ignition sources, excess heat, exposure to moist air or

water, prolonged exposure to air, confined spaces.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, hexachloromelamine, trichloromelamine.

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

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 62-53-3: BW6650000

LD50/LC50:

CAS# 62-53-3:

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:

CAS# 62-53-3:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 1/1/90
- **NTP:** Not listed.
- **IARC:** Not listed.

Epidemiology: No data available.

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 found

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/L.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Bacteria: Phytobacterium phosphoreum: EC50 = 425-488 mg/L; 5,15 min; Microtox test at 14.9-15.1°C Water flea Daphnia: LC50 = 0.10 mg/L; 48 Hr; Unspecified Fish: Rainbow trout: LC50 = 8.2 mg/L; Max. exposure = 7 days; Unspecified Fish: Bluegill/Sunfish: 1020 ppm; 1 Hr; Unspecified No data available.

Environmental: 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).

Physical: No information available.

Other: Dangerous to aquatic life in high concentrations.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 62-53-3: waste number U012 (Ignitable waste, Toxic waste).

Section 14 - Transport Information

| | US DOT | Canada TDG |
|-----------------------|---------|------------|
| Shipping Name: | ANILINE | ANILINE |
| Hazard Class: | 6.1 | 6.1 |
| UN Number: | UN1547 | UN1547 |
| Packing Group: | II | II |

Section 15 - Regulatory Information

US FEDERAL

TSCA

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

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 62-53-3: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 62-53-3: 1000 lb TPQ

SARA Codes

CAS # 62-53-3: immediate, delayed, fire.

Section 313

This material contains Aniline (CAS# 62-53-3, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 62-53-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 62-53-3 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 62-53-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, 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 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T N

Risk Phrases:

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 40 Limited evidence of a carcinogenic effect.

R 41 Risk of serious damage to eyes.

R 43 May cause sensitization by skin contact.

R 50 Very toxic to aquatic organisms.

R 48/23/24/25 Toxic : danger of serious damage to health by prolonged exposure through inhalation, contact with skin and if

swallowed.
R 68 Possible risk of irreversible effects.

Safety Phrases:

- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 27 Take off immediately all contaminated clothing.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 46 If swallowed, seek medical advice immediately and show this container or label.
- S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.
- S 63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.

WGK (Water Danger/Protection)

CAS# 62-53-3: 2

Canada - DSL/NDSL

CAS# 62-53-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2B, D2A, B3. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 62-53-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/04/1999

Revision #6 Date: 11/07/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.