

ANILINE

ANL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Aminobenzene Aniline oil Benzenamine Blue oil Phenylamine	Oily liquid Sinks slowly in water.	Colorless to yellowish brown	Amine odor
<p>AVOID CONTACT WITH LIQUID AND VAPOR. KEEP PEOPLE AWAY. Wear chemical protective suit with self-contained breathing apparatus. Stop discharge if possible. Stay upwind and use water spray to "knock down" vapor. Call fire department. Isolate and remove discharged material. Notify local health and pollution control agencies. Protect water intakes.</p>			
Fire	Combustible. POISONOUS GAS IS PRODUCED WHEN HEATED. Vapor may explode if ignited in an enclosed area. Wear chemical protective suit with self-contained breathing apparatus. Extinguish with water, dry chemical, foam, or carbon dioxide. Cool exposed containers with water.		
Exposure	CALL FOR MEDICAL AID. LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Irritating to eyes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.		
Water Pollution	Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
 Stop discharge
 Contain
 Collection Systems: Skim; Pump;
 Dredge
 Salvage waterfowl
 Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 9; Aromatic amine
2.2 Formula: C₆H₅NH₂
2.3 IMO/UN Designation: 6.1/1547
2.4 DOT ID No.: 1547
2.5 CAS Registry No.: 62-53-3
2.6 NAERG Guide No.: 153
2.7 Standard Industrial Trade Classification: 51454

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment:** Respirator for organic vapors, splashproof goggles, rubber gloves, boots.
- 3.2 Symptoms Following Exposure:** ACUTE EXPOSURE: Blue discoloration of finger-tips, cheeks, lips and nose; nausea, vomiting, headache and drowsiness followed by delirium, coma and shock. CHRONIC EXPOSURE: Loss of appetite, loss of weight, headaches, visual disturbances; skin lesions.
- 3.3 Treatment of Exposure:** Remove victim to fresh air and call a physician at once. SKIN, EYE CONTACT: immediately flush skin or eyes with plenty of water for at least 15 min. If cyanosis is present, shower with soap and warm water, with special attention to scalp and fingernails. Administer oxygen until physician arrives.
- 3.4 TLV-TWA:** 2 ppm (skin)
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 3; LD₅₀ = 50 to 500 mg/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: None recognized
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
3.11 Liquid or Solid Characteristics: If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
3.12 Odor Threshold: 0.5 ppm
3.13 IDLH Value: 100 ppm
3.14 OSHA PEL-TWA: 5 ppm.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

- 4.1 Flash Point:** 168°F O.C. 158°F C.C.
4.2 Flammable Limits in Air: 1.3%-11%
4.3 Fire Extinguishing Agents: Water, foam, dry chemical, or carbon dioxide
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic vapors are generated when heated.
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: 1139°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 3.0 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichiometric Air to Fuel Ratio: Currently not available
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): Currently not available
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

- 5.1 Reactivity with Water:** No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Flush with water and rinse with dilute acetic acid
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

- 6.1 Aquatic Toxicity:**
 1020 ppm/1 hr/sunfish/killed/fresh water
 10 ppm/96 hr/scenedesmus/TL₅₀/fresh water
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): 150%, 5 days
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
 Bioaccumulation: 0
 Damage to living resources: 2
 Human Oral hazard: 2
 Human Contact hazard: II
 Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 Grades of Purity:** Commercial: 99.5%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Pressure-vacuum
7.5 IMO Pollution Category: C
7.6 Ship Type: 2
7.7 Barge Hull Type: 1

8. HAZARD CLASSIFICATIONS

- 8.1 49 CFR Category:** Poison
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: II
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:
- | | |
|---------------------------|----------------|
| Category | Classification |
| Health Hazard (Blue)..... | 3 |
| Flammability (Red)..... | 2 |
| Instability (Yellow)..... | 0 |
- 8.6 EPA Reportable Quantity:** 5000
8.7 EPA Pollution Category: D
8.8 RCRA Waste Number: U012
8.9 EPA FWPCA List: Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm:** Liquid
9.2 Molecular Weight: 93.13
9.3 Boiling Point at 1 atm: 363.6°F = 184.2°C = 457.4°K
9.4 Freezing Point: 21°F = -6.1°C = 267.1°K
9.5 Critical Temperature: 798.1°F = 425.6°C = 698.8°K
9.6 Critical Pressure: 770 psia = 52.4 atm = 5.31 MN/m²
9.7 Specific Gravity: 1.022 at 20°C (liquid)
9.8 Liquid Surface Tension: 45.5 dynes/cm = 0.455 N/m at 20°C
9.9 Liquid Water Interfacial Tension: 5.8 dynes/cm = 0.0058 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): 1.1
9.12 Latent Heat of Vaporization: 198 Btu/lb = 110 cal/g = 4.61 X 10⁵ J/kg
9.13 Heat of Combustion: -14,980 Btu/lb = -8320 cal/g = -348.3 X 10⁵ J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: 0.02 psia

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
40	64.620	35	0.479	30	1.201	40	6.877
50	64.309	40	0.482	40	1.192	50	5.773
60	64.009	45	0.484	50	1.184	60	4.878
70	63.710	50	0.486	60	1.176	70	4.149
80	63.410	55	0.489	70	1.168	80	3.550
90	63.110	60	0.491	80	1.159	90	3.054
100	62.810	65	0.493	90	1.151	100	2.642
110	62.510	70	0.496	100	1.143	110	2.297
120	62.220	75	0.498	110	1.135	120	2.007
130	61.920	80	0.500	120	1.126	130	1.762
140	61.620	85	0.503	130	1.118	140	1.553
150	61.320	90	0.505	140	1.110	150	1.375
160	61.020	95	0.507	150	1.101	160	1.222
170	60.730	100	0.510	160	1.093	170	1.090
180	60.430	105	0.512	170	1.085	180	0.976
190	60.130	110	0.514	180	1.077	190	0.876
200	59.840	115	0.517	190	1.068	200	0.790
210	59.540	120	0.519	200	1.060	210	0.714
						220	0.647
						230	0.589
						240	0.537

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
86	3.700	60	0.003	60	0.00005	0	0.236
		70	0.005	70	0.00009	25	0.250
		80	0.008	80	0.00013	50	0.264
		90	0.013	90	0.00020	75	0.278
		100	0.019	100	0.00030	100	0.292
		110	0.029	110	0.00044	125	0.305
		120	0.042	120	0.00063	150	0.317
		130	0.061	130	0.00090	175	0.330
		140	0.088	140	0.00127	200	0.342
		150	0.125	150	0.00178	225	0.353
		160	0.175	160	0.00245	250	0.365
		170	0.243	170	0.00335	275	0.376
		180	0.334	180	0.00453	300	0.387
		190	0.455	190	0.00608	325	0.397
		200	0.613	200	0.00807	350	0.408
		210	0.820	210	0.01062	375	0.418
						400	0.427
						425	0.437
						450	0.446
						475	0.455
						500	0.463
						525	0.472
						550	0.480
						575	0.488
						600	0.496