

O-TOLUIDINE

TLI

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 2-Amino-1-methylbenzene 2-Aminotoluene 2-Methylaniline o-Methylaniline		Liquid Colorless to yellow-brown Chemical odor
May float or sink in water.		
Keep people away. Avoid contact with liquid and vapor. Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.		
Fire	Combustible. POISONOUS GASES MAY BE PRODUCED IN FIRE. Wear goggles and self-contained breathing apparatus. Extinguish with dry chemicals, foam or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.	
Exposure	CALL FOR MEDICAL AID. LIQUID Irritating to skin and eyes. If swallowed will cause nausea, vomiting or loss of consciousness. 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 and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.	
Water Pollution	Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.	

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Collection Systems: Skim; Pump
 Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
 2.2 Formula: 1, 2-C₇H₇NH₂
 2.3 IMO/UN Designation: 6.1/1708
 2.4 DOT ID No.: 1708
 2.5 CAS Registry No.: 95-53-4
 2.6 NAERG Guide No.: 153
 2.7 Standard Industrial Trade Classification: 51454

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical safety goggles; face shield; Bu. Mines approved respirator; leather or rubber safety shoes; butyl rubber gloves
- 3.2 **Symptoms Following Exposure:** Absorption of toxic quantities by any route causes cyanosis (blue discoloration of lips, nails, skin); nausea, vomiting, and coma may follow. Repeated inhalation of low concentrations may cause pallor, low-grade secondary anemia, fatigability, and loss of appetite. Contact with eyes causes irritation.
- 3.3 **Treatment of Exposure:** Get medical attention following all exposures to this compound. INHALATION: move to fresh air. INGESTION: if victim is conscious, promptly induce vomiting by giving lukewarm soapy water or mustard and water. EYES: flush with copious amounts of water for at least 15 min., holding lids apart. SKIN: remove all contaminated clothing; wash affected areas immediately and thoroughly with plenty of warm water and soap.
- 3.4 TLV-TWA: 2 ppm
 3.5 TLV-STEL: Not listed.
 3.6 TLV-Ceiling: Not listed.
 3.7 Toxicity by Ingestion: Grade 2; oral LD₅₀ = 900 mg/kg (rat)
 3.8 Toxicity by Inhalation: Currently not available.
 3.9 Chronic Toxicity: Causes tumors in urinary bladder of rats
 3.10 Vapor (Gas) Irritant Characteristics: Currently not available
 3.11 Liquid or Solid Characteristics: Currently not available
 3.12 Odor Threshold: Currently not available
 3.13 IDLH Value: 50 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: 167°F O.C.
 85°C C.C.
- 4.2 Flammable Limits in Air: Currently not available
- 4.3 Fire Extinguishing Agents: Foam, dry chemical, or carbon dioxide
- 4.4 Fire Extinguishing Agents Not to Be Used: Water may be ineffective.
- 4.5 Special Hazards of Combustion Products: Toxic oxides of nitrogen and flammable vapors may form in fire.
- 4.6 Behavior in Fire: Currently not available
- 4.7 Auto Ignition Temperature: 900°F
- 4.8 Electrical Hazards: I, D
- 4.9 Burning Rate: 3.62 mm/min.
- 4.10 Adiabatic Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: 48.8 (calc.)
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): 12.5 (calc.)
- 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: Currently not available
- 5.3 Stability During Transport: Stable
- 5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
- 5.5 Polymerization: Not pertinent
- 5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

- 6.1 Aquatic Toxicity: 100 ppm*/fish/lethal/fresh water
 *Time period not specified.
- 6.2 Waterfowl Toxicity: Currently not available
- 6.3 Biological Oxygen Demand (BOD): 143%, 5 days
- 6.4 Food Chain Concentration Potential: None
- 6.5 GESAMP Hazard Profile: Not listed

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: Open (flame arrester)
- 7.5 IMO Pollution Category: C
- 7.6 Ship Type: 2
- 7.7 Barge Hull Type: 2

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: 100 pounds
- 8.7 EPA Pollution Category: B
- 8.8 RCRA Waste Number: U328
- 8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm: Liquid
- 9.2 Molecular Weight: 107.2
- 9.3 Boiling Point at 1 atm: 392°F = 200°C = 473°K
- 9.4 Freezing Point: -11°F = -24°C = 249°K
- 9.5 Critical Temperature: 789.8°F = 421°C = 694.2°K
- 9.6 Critical Pressure: 544 psia = 37.0 atm = 3.75 MN/m²
- 9.7 Specific Gravity: 0.998 at 20°C (liquid)
- 9.8 Liquid Surface Tension: 43.55 dynes/cm = 0.04355 N/m at 20°C
- 9.9 Liquid Water Interfacial Tension: Currently not available
- 9.10 Vapor (Gas) Specific Gravity: Not pertinent
- 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
- 9.12 Latent Heat of Vaporization: 179.1 Btu/lb = 99.5 cal/g = 4.16 X 10⁵ J/kg
- 9.13 Heat of Combustion: -16,180 Btu/lb = -8,990 cal/g = -376 X 10⁶ 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: Currently not available

NOTES

O-TOLUIDINE

TLI

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
34	63.240	60	0.490	42	1.102	55	5.524
36	63.190	65	0.490	44	1.102	60	5.059
38	63.130	70	0.490	46	1.102	65	4.640
40	63.070	75	0.490	48	1.102	70	4.263
42	63.020	80	0.490	50	1.102	75	3.922
44	62.960	85	0.490	52	1.102	80	3.615
46	62.910	90	0.490	54	1.102	85	3.336
48	62.850	95	0.490	56	1.102	90	3.084
50	62.800	100	0.490	58	1.102	95	2.854
52	62.740	105	0.490	60	1.102	100	2.646
54	62.690	110	0.490	62	1.102	105	2.456
56	62.630	115	0.490	64	1.102	110	2.282
58	62.570	120	0.490	66	1.102	115	2.124
60	62.520	125	0.490	68	1.102	120	1.979
62	62.460	130	0.490	70	1.102		
64	62.410	135	0.490	72	1.102		
66	62.350	140	0.490	74	1.102		
68	62.300	145	0.490	76	1.102		
70	62.240			78	1.102		
72	62.190			80	1.102		
74	62.130			82	1.102		
76	62.080			84	1.102		
78	62.020						
80	61.960						
82	61.910						
84	61.850						

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	1.800	220	0.541	220	0.00794		N
		230	0.685	230	0.00992		O
		240	0.863	240	0.01231		T
		250	1.079	250	0.01519		
		260	1.342	260	0.01862		P
		270	1.658	270	0.02269		E
		280	2.037	280	0.02750		R
		290	2.489	290	0.03316		T
		300	3.026	300	0.03978		I
		310	3.659	310	0.04748		N
		320	4.404	320	0.05641		E
		330	5.276	330	0.06672		N
		340	6.291	340	0.07856		T
		350	7.469	350	0.09212		
		360	8.831	360	0.10760		
		370	10.400	370	0.12520		
		380	12.200	380	0.14510		
		390	14.250	390	0.16750		