O-DICHLOROBENZENE

DBO

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
1,2-Dichlorobenzene
ortho-Dichlorobenzene
Dowtherm e

Liquid | Colorless | Pleasant odor

Sinks in water.

Avoid contact with liquid.
Wear goggles and self-contained breathing apparatus.
Call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible
POISONOUS GASES ARE PRODUCED IN FIRE.
Wear goggles and self-contained breathing apparatus.
Extinguish with water, dry chemical, foam, or carbon dioxide.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
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.
May be dangerous if it enters water intakes.
Notify local health and pollution control officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Pump; Dredge
Do not burn
Clean shore line

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 36; Halogenated hydrocarbon
2.2 Formula: o-$C_6H_4Cl_2$
2.3 IMO/UN Designation: 6.1/1591
2.4 DOT ID No.: 1591
2.5 CAS Registry No.: 95-50-1
2.6 NAERG Guide No.: 152
2.7 Standard Industrial Trade Classification: 51139

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Organic vapor-acid gas respirator; neoprene or vinyl gloves; chemical safety spectacles, face shield, rubber footwear, apron, protective clothing.
3.2 Symptoms Following Exposure: Chronic inhalation of mist or vapors may result in damage to lungs, liver, and kidneys. Acute vapor exposure can cause symptoms ranging from coughing to central nervous system depression and transient anesthesia. Irritating to skin, eyes, and mucous membranes. May cause dermatitis.
3.3 Treatment of Exposure: INHALATION: remove victim to fresh air, keep him quiet and warm, and call a physician promptly. INGESTION: no known antidote; treat symptomatically; induce vomiting and get medical attention promptly. EYES AND SKIN: flush with plenty of water; get medical attention for eyes; remove contaminated clothing and wash before reuse.
3.4 TLV-TWA: 25 ppm
3.5 TLV-STEL: 50 ppm
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 2; LD_{50} = 0.5 to 5 g/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Causes kidney and liver damage in rats. Effects unknownin humans.
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.
3.11 Liquid or Solid Characteristics: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
3.12 Odor Threshold: 4.0 ppm; 50 ppm
3.13 IDLH Value: 200 ppm
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: 50 ppm
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 165°F O.C. 155°F C.C.
4.2 Flammable Limits in Air: 2.2%-9.2%
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: Poisonous vapors including hydrogen chloride gas, chlorocarbons, chlorine
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: 1198°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 1.3 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 30.9 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 9.0 (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: No reaction
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:
13 ppm/*/marine plankton/no growth/ salt water
*Time period not specified.
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): <0.1% (theor.), 1/8 day
6.4 Food Chain Concentration Potential: Currently not available
6.5 GESAMP Hazard Profile:
Bioaccumulation: T
Damage to living resources: 3
Human Oral hazard: 1
Human Contact hazard: I
Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 Grades of Purity: Technical: 99.5% min. dichlorobenzene (ratio-ortho + para/meta: 80 min.) Technical: 85% orthodichlorobenzene, 14.0% paradichlorobenzene Technical: 80% ortho, 17% para, 2% meta Pure: not less than 99.5% ortho, not more than 0.5% para
7.2 Storage Temperature: Currently not available
7.3 Inert Atmosphere: Currently not available
7.4 Venting: Currently not available
7.5 IMO Pollution Category: B
7.6 Ship Type: 2
7.7 Barge Hull Type: 3

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Keep Away From Food
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: III
8.4 Marine Pollutant: Yes
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	2
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: 100 pounds
8.7 EPA Pollution Category: B
8.8 RCRA Waste Number: U070
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: 147.01
9.3 Boiling Point at 1 atm: 356.9°F = 180.5°C = 453.7°K
9.4 Freezing Point: 0.3°F = 17.6°C = 255.6°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.306 at 20°C (liquid)
9.8 Liquid Surface Tension: 37 dynes/cm = 0.037 N/m at 20°C
9.9 Liquid Water Interfacial Tension: (est.) 40 dynes/cm = 0.04 N/m at 20°C
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): 1.080
9.12 Latent Heat of Vaporization: 115 Btu/lb = 63.9 cal/g = 2.68 X 10^5 J/kg
9.13 Heat of Combustion: –7969 Btu/lb = –4427 cal/g = –185.4 X 10^5 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: 21.02 cal/g
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: 0.06 psia

NOTES

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9.20 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
60	81.799
61	81.770
62	81.730
63	81.700
64	81.660
65	81.629
66	81.589
67	81.559
68	81.520
69	81.490
70	81.450
71	81.419
72	81.389
73	81.349
74	81.320
75	81.280
76	81.250
77	81.209

9.21 LIQUID HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
40	0.271
50	0.273
60	0.275
70	0.276
80	0.278
90	0.280
100	0.281
110	0.283
120	0.285
130	0.286
140	0.288
150	0.290
160	0.291
170	0.293
180	0.295
190	0.296
200	0.298
210	0.300

9.22 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit inch per hour-square foot-F
30	0.866
35	0.863
40	0.859
45	0.856
50	0.853
55	0.850
60	0.847
65	0.844
70	0.840
75	0.837
80	0.834
85	0.831
90	0.828
95	0.825
100	0.821
105	0.818
110	0.815
115	0.812
120	0.809
125	0.806
130	0.803
135	0.799
140	0.796
145	0.793
150	0.790
155	0.787

9.23 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
32	1.041
34	1.021
36	1.001
38	0.982
40	0.964
42	0.945
44	0.928
46	0.911
48	0.894
50	0.878
52	0.862
54	0.846
56	0.831
58	0.817
60	0.802
62	0.788
64	0.775
66	0.762

9.24 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
77	0.015

9.25 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
40	0.009
50	0.013
60	0.018
70	0.025
80	0.035
90	0.048
100	0.064
110	0.086
120	0.114
130	0.150
140	0.195
150	0.252
160	0.322
170	0.409
180	0.515
190	0.644
200	0.801
210	0.988

9.26 SATURATED VAPOR DENSITY

Temperature (degrees F)	Pounds per cubic foot
40	0.00024
50	0.00034
60	0.00047
70	0.00065
80	0.00088
90	0.00118
100	0.00157
110	0.00207
120	0.00270
130	0.00348
140	0.00446
150	0.00565
160	0.00712
170	0.00889
180	0.01103
190	0.01358
200	0.01662
210	0.02022

9.27 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
0	0.162
25	0.169
50	0.177
75	0.184
100	0.191
125	0.198
150	0.205
175	0.211
200	0.218
225	0.224
250	0.230
275	0.236
300	0.241
325	0.247
350	0.252
375	0.257
400	0.262
425	0.267
450	0.272
475	0.276
500	0.280
525	0.285
550	0.289
575	0.292
600	0.296