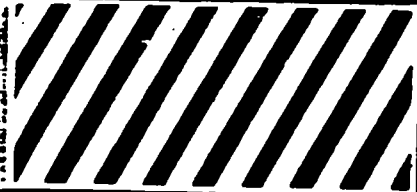
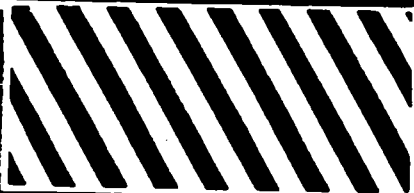


Dangerous Properties

 **of** 

Industrial Materials

Sixth Edition

 **N. Irving Sax** 

057-024-03

N,N-BIS(2-CHLOROETHYL)-p-CHLOROBENZYLAMINE HYDROCHLORIDE

NIOSH #: DP 1580000

mf: $C_{11}H_{11}Cl_3N \cdot ClH$; mw: 302.9

SYN: 7-CHLORO-DI-(2-CHLOROETHYL)-BENZYLAMINE HYDROCHLORIDE

TOXICITY DATA:LD₅₀ 2500 umol/L**CODEN:**

SOGEBZ 6,220,70

THR: MUT tests data.

Disaster Hazard: When heated to decomp it emits very tox fumes as Cl^- and NO_2 .**N,N-BIS(2-CHLOROETHYL)-3-CHLORO-6-ETHOXYBENZYLAMINE HYDROCHLORIDE**

NIOSH #: DP 1579000

mf: $C_{13}H_{15}Cl_3NO \cdot ClH$; mw: 347

SYN: 2-ETHOXY-5-CHLOROBENZYL-BIS(BETA-CHLOROETHYL) AMINE HYDROCHLORIDE

TOXICITY DATA:LD₅₀ 500 umol/L**CODEN:**

SOGEBZ 7,113,71

THR: MUT tests data.

Disaster Hazard: When heated to decomp it emits very tox fumes such as Cl^- and NO_2 .**N,N'-BIS(2-CHLOROETHYL)-N-(2-CHLOROETHYLAMINOETHYL)-ETHYLENEDIAMINE TRIHYDROCHLORIDE**

CAS RN: 63918354

NIOSH #: KV 2450000

mf: $C_{10}H_{22}Cl_3N_3 \cdot 3ClH$; mw: 400.08**TOXICITY DATA:**ipr-rat LD₅₀: 1900 ug/kg
ipr-mus LD₅₀: 5600 ug/kg

3

CODEN:JPETAB 100,398,50
JPETAB 100,398,50

THR: HIGH ipr.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_2 .**N,N'-BIS(2-CHLOROETHYL)-N,N'-DIETHYLETHYLENEDIAMINE DIHYDROCHLORIDE**

CAS RN: 63918365

NIOSH #: KV 2625000

mf: $C_{10}H_{22}Cl_2N_2 \cdot 2ClH$; mw: 314.16**TOXICITY DATA:**ipr-rat LD₅₀: 2300 ug/kg
ipr-mus LD₅₀: 3900 ug/kg

3

CODEN:JPETAB 100,398,50
JPETAB 100,398,50

THR: HIGH ipr.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl^- and NO_2 .**BIS(2-CHLOROETHYL) ETHER**

CAS RN: 111444

NIOSH #: KN 0875000

mf: $C_4H_8Cl_2O$; mw: 143.02

Colorless, stable liquid. bp: 178.5°, fp: -51.9°, flash p: 131°F (CC), d: 1.2220 @ 20°/20°, autoign. temp: 696°F, vap. press: 0.7 mm @ 20°, vap. d: 4.93.

SYNS:BIS(BETA-CHLOROETHYL) ETHER
1-CHLORO-2-(BETA-CHLORO-ETHOXY)ETHANE
2,2'-DICHLOROETHYLETHER (DUTCH)
2,2'-DICHLOR-DIAETHYLAEETHER (GERMAN)
2,2'-DICHLOROETHYL ETHER
BETA,BETA-DICHLORODIETHYL ETHER
DICHLOROETHYL ETHER
DI(BETA-CHLOROETHYL)ETHER
BETA,BETA'-DICHLOROETHYL ETHERBIS-DICHLOROETHYL ETHER
2,2'-DICHLOROETHYL ETHER
DICHLOROETHYL OXIDE
2,2'-DICLOROETILETERE (ITAL-
IAN)
DWUCLORODWUETYLLOWY
ETER (POLISH)
ENT 4,504
ETHER DICHLOR (FRENCH)
1,1'-OXYBIS(2-CHLORO)ETHANE
OXYDE DE CHLORETHYLE
(FRENCH)**TOXICITY DATA:**

3

CODEN:skn-rbt 10 mg/24H
skn-rbt 500 mg open MLD
eye-rbt 20 mg
ori-mus TIDLo: 33 gm/kg/79W-
C: CARC
acu-mus TDIo: 2400 mg/kg/60W-
I: ETA
ori-rat LD₅₀: 75 mg/kg
ihl-rat LCLo: 1000 ppm/45M
skn-rbt LD₅₀: 720 mg/kgJIHITAB 30,63,48
UCDS** 12/29/71
AJOPAA 29,1363,46
JNCIAM 42,1101,69
JNCIAM 48,1431,72
JIHTAB 30,63,48
JIHTAB 30,63,48
UCDS** 12/29/71Aquatic Toxicity Rating: TLM96:1000-100 ppm
WQCHM* 3,-,74. Carcinogenic Determination: Ani-
mal Positive IARC** 9,117,75.TLV: Air: 5 ppm DTLVS* 4,131,80. Toxicology Review:
85CVA2 5,250,70; BNYMAM 54,413,78; 27ZTAP
3,49,69. OSHA Standard: Air: CL 15 ppm (skin)
(SCI-V) FEREAC 39,23540,74. "NIOSH Manual of
Analytical Methods" VOL 3 S357. Reported in EPA
TSCA Inventory, 1980. EPA TSCA 8(a) Preliminary
Assessment Information Proposed Rule FERREAC
45,13646,80.THR: HIGH via oral and inhal; MOD via dermal routes.
The vapor is irr to the mu mem of the eyes and nose.
It affects the kidneys and liver in varying degrees, and
is a mild narcotic. Guinea pigs cannot be killed immedi-
ately by exposure to conc which can be attained at
ordinary room temp, but exposure to 1,000 ppm for
30 to 60 min may produce death after several days.
Autopsy shows congestion of the lungs and upper respi-
ratory tract, pulmonary edema, and congestion of the
liver, brain and kidneys. The pulmonary edema appar-
ently develops after a latent period of several hours,
similar to the action of "nitrous fumes." In humans,
exposure to 500 to 1,000 ppm causes severe irr of the
eyes (which starts @ 260 ppm) and nose after brief
exposure, and deep inhal is nauseating and intolerable.
A conc of 100 ppm produces slight nausea and irr;
conc of 35 ppm are practically free from irr, though
the odor is easily detectable. An exper CARC, ETA.
Fire Hazard: Mod, when exposed to heat, flame or oxi-
dants.Explosion Hazard: See also ethers. Reacts vigorously with
oleum, chlorosulfonic acid.

458 BIS(alpha-CHLOROETHYL) ETHER

Disaster Hazard: Dangerous; when heated to decomp, emits highly tox fumes; reacts with water or steam to evolve tox and corrosive fumes; can react vigorously with oxidizing materials.

To Fight Fire: Water, foam, mist, fog, spray, dry chemical.

BIS(alpha-CHLOROETHYL) ETHER

CAS RN: 6986487 NIOSH #: KN 0700000
mf: C₄H₈Cl₂O; mw: 143.02

SYN: 1,1'-OXYBIS(1-CHLOROETHANE)

TOXICITY DATA: 3 **CODEN:**
scu-mus TDLo: 648 mg/kg/54W- JNCIAM 48,1431,72
I:ETA

THR: An exper ETA. See also ethers.

Disaster Hazard: When heated to decomp it emits tox fumes of Cl⁻.

BIS(2-CHLOROETHYL)ETHYLAMINE

CAS RN: 538078 NIOSH #: YE 1225000
mf: C₆H₁₃Cl₂N; mw: 170.10

SYNS:

ETHYLBIS(BETA-CHLORO-ETHYL)AMINE

ETHYLBIS(2-CHLOROETHYL)AMINE

TOXICITY DATA: 3 **CODEN:**
ihl-rat LC50: 1600 mg/m³ NDRC** 11,91,43
skn-rat LD50: 17 mg/kg JPETAB 91,224,47
skn-mus LD50: 13 mg/kg JPETAB 91,224,47
ipr-mus LDLo: 1030 ug/kg NDRC** No.9-4-1-9,43
scu-mus LDLo: 1140 ug/kg NDRC** No.9-4-1-9,43
skn-dog LDLo: 40 mg/kg NTIS** PB158-507
skn-rbt LD50: 15 mg/kg JPETAB 91,224,47
ivn-rbt LDLo: 2 mg/kg NTIS** PB158-507

THR: HIGH ivn, skn, scu, ipr, ihl.

Disaster Hazard: When heated to decomp it emits very tox fumes of Cl⁻ and NO₂.

N,N-BIS(2-CHLOROETHYL)-p-FLUOROBENZYLAMINE HYDROCHLORIDE

NIOSH #: DP 1584000
mf: C₁₁H₁₄Cl₂FN·ClH; niw: 286.55

SYN: p-FLUORO-DI(2-CHLOROETHYL)-BENZYLAMINE HYDROCHLORIDE

TOXICITY DATA: **CODEN:**
mmo-asn 2500 umol/L SOGEBZ 6,220,70

THR: MUT tests data.

Disaster Hazard: When heated to decomp it emits very tox fumes such as F⁻, Cl⁻ and NO₂.

BIS(beta-CHLOROETHYL)FORMAL

CAS RN: 111911 NIOSH #: PA 3675000
mf: C₃H₁₀Cl₂O₂; mw: 173.05

Liquid. bp: 217.5°, flash p: 230°F (OC), d: 1.23, vap. d: 5.9.

SYNS:

BIS(2-CHLOROETHYL)FORMAL
DICHLOROETHYL FORMAL

DI-2-CHLOROETHYL FORMAL
FORMALDEHYDE BIS(BETA-CHLOROETHYL) ACETAL

TOXICITY DATA: 3 **CODEN:**
skn-rbt 10 mg/24H JIHTAB 30,63,48
eye-rbt 500 mg AJOPAA 29,1363,46
ori-rat LD50: 65 mg/kg JIHTAB 30,63,48
ihl-rat LCLo: 62 ppm/411 JIHTAB 31,343,49
skn-gpg LD50: 170 mg/kg JIHTAB 30,63,48

Reported in EPA TSCA Inventory, 1980. EPA TSCA
8(a) Preliminary Assessment Information Proposal
Rule FERREAC 45,13646,80.

THR: HIGH ori, ihl, skn. A skn, eye irr.

Fire Hazard: Slight, when exposed to heat or flame.

Disaster Hazard: Dangerous; see chlorides.

To Fight Fire: Alcohol foam, foam, CO₂, dry chemical
Disaster Hazard: When heated to decomp it emits tox fumes of Cl⁻.

Incomp: Oxidizing materials.

N,N-BIS(2-CHLOROETHYL)-p-IODOBENZYLAMINE HYDROCHLORIDE

NIOSH #: DP 159000
mf: C₁₁H₁₄Cl₂IN·ClH; mw: 394.46

SYN: p-iodo-di-(2-CHLOROETHYL)-BENZYLAMINE HYDROCHLORIDE

TOXICITY DATA: **CODEN:**
mmo-asn 2500 umol/L SOGEBZ 6,220,70

THR: MUT tests data.

Disaster Hazard: When heated to decomp it emits very tox fumes such as Cl⁻, I⁻ and NO₂.

BIS(beta-CHLOROETHYL)METHYLAMINE

CAS RN: 51752 NIOSH #: IA 175000
mf: C₆H₁₁Cl₂N; mw: 156.07

Dark liquid. mp: 1° @ 10 mm, d: 1.09 @ 25°, vap. press: 0.17 mm @ 25°, vap. d: 5.9.

SYNS:

BIS(2-CHLOROETHYL)METHYL-AMINE
N,N-BIS(2-CHLOROETHYL)-METHYLAMINE
CHLORAMINE
CHLORAMINE (THE NITROGEN MUSTARD)
DICHLORON (GERMAN)
BETA,BETA'-DICHLORODIETHYL-N-METHYLAMINE
DI(2-CHLOROETHYL)METHYL-AMINE
2,2'-DICHLORO-N-METHYLDI-ETHYLAMINE

METHYLBIS(BETA-CHLORO-ETHYL)AMINE
N-METHYL-BIS-CHLOROETHYL-AMINE (GERMAN)
N-METHYL-BIS(BETA-CHLORO-ETHYL)AMINE
N-METHYL-2,2'-DICHLORO-ETHYLAMINE
METHYLDI(2-CHLOROETHYL)AMINE
N-METHYL-LOST
MUSTINE
NITROGEN MUSTARD
NSC 762

TOXICITY DATA: 3 **CODEN:**
eye-rbt 400 ug SEV AJOPAA 29,1553,46
eye-rbt 20 ug/30M INOPAO 15,308,76
mmo-sat 40 ug/plate CNREAS 37,2209,77
mmo-sat 50 ug/plate PNASA 6 72,5135,75
ipr-rat TDLo: 700 ug/kg/(12D preg) PEDIAU 23,231,59
TFX:TER