



NATIONAL TRANSPORTATION SAFETY BOARD - **Public Hearing**

Conrail Derailment in Paulsboro, NJ with Vinyl Chloride Release

GROUP	3
EXHIBIT	
BL	

Agency / Organization

National Institute for Occupational Safety and Health

Title

**NIOSH Pocket Guide to
Chemical Hazards - Vinyl Chloride**

NIOSH

POCKET GUIDE TO

**CHEMICAL
HAZARDS**



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

CDC
CENTERS FOR DISEASE CONTROL
AND PREVENTION

Chemical name, structure/formula, CAS and RTECS Nos., and DOT ID and guide Nos.	Synonyms, trade names, and conversion factors	Exposure limits (TWA unless noted otherwise)	IDLH	Physical description	Chemical and physical properties		Incompatibilities and reactivities	Measurement method (See Table 1)
					MW, BP, SOL Fl.P, IP, Sp, Gr, flammability	VP, FRZ UEL, LEL		
Vinyl bromide $\text{CH}_2=\text{CHBr}$ 593-60-2 KU8400000	Bromoethene, Bromoethylene	NIOSH Ca See Appendix A OSHA† none	Ca [N.D.]	Colorless gas or liquid (below 60°F) with a pleasant odor. [Note: Shipped as a liquefied compressed gas with 0.1% phenol added to prevent polymerization.]	MW: 107.0 BP: 60°F Sol: Insoluble Fl.P: NA (Gas) IP: 9.80 eV RGasD: 3.79 Sp.Gr: 1.49 (Liquid at 60°F) Flammable Gas Class IA Flammable Liquid	VP: 1.4 atm FRZ: -219°F UEL: 15% LEL: 9%	Strong oxidizers [Note: May polymerize in sunlight.]	Char; Ethanol; GC/FID; III [#1009]
1085 60	1 ppm = 4.45 mg/m ³							
Vinyl chloride $\text{CH}_2=\text{CHCl}$ 75-01-4 KU9625000	Chloroethene, Chloroethylene, Ethylene monochloride, Monochloroethene, Monochloroethylene, VC, Vinyl chloride monomer (VCM)	NIOSH Ca See Appendix A [Use 1910.1017] OSHA [1910.1017] 1 ppm C 5 ppm [15-min]	Ca [N.D.]	Colorless gas or liquid (below 7°F) with a pleasant odor at high concen- trations. [Note: Shipped as a liquefied compressed gas.]	MW: 62.5 BP: 7°F Sol(77°F): 01% Fl.P: NA (Gas) IP: 9.99 eV RGasD: 2.21 Flammable Gas	VP: 3.3 atm FRZ: -256°F UEL: 33.0% LEL: 3.6%	Copper, oxidizers, aluminum, peroxides, iron, steel [Note: Polymerizes in air, sunlight, or heat unless stabilized by inhibi- tors such as phenol. Attacks iron & steel in presence of moisture.]	Char(2); CS; GC/FID; III [#1007]
1086 17	1 ppm = 2.60 mg/m ³							
Vinyl cyclohexene dioxide $\text{C}_8\text{H}_{12}\text{O}_2$ 106-87-6 RN8640000	1-Epoxyethyl-3,4-epoxy- cyclohexane; 4-Vinylcyclohexene diepoxide; 4-Vinyl-1-cyclohexene dioxide	NIOSH Ca Appendix A 10 ppm (60 mg/m ³) [skin] OSHA† none	Ca [N.D.]	Colorless liquid.	MW: 140.2 BP: 441°F Sol: High Fl.P(oc): 230°F IP: ? Sp.Gr: 1.10 Class III B Combustible Liquid	VP: 0.1 mm FRZ: -164°F UEL: ? LEL: ?	Alcohols, amines, water [Note: Slowly hydrolyzes in water.]	None available
1086 17	1 ppm = 5.83 mg/m ³							
Vinyl fluoride $\text{CH}_2=\text{CHF}$ 75-02-5 YZ7351000	Fluoroethene, Fluoroethylene, Monofluoroethylene, Vinyl fluoride monomer	NIOSH 1 ppm C 5 ppm [use 1910.1017] OSHA none	N.D.	Colorless gas with a faint, ethereal odor. [Note: Shipped as a liquefied compressed gas.]	MW: 46.1 BP: -98°F Sol: Insoluble Fl.P: NA (Gas) IP: 10.37 eV RGasD: 1.60 Flammable Gas	VP: 25.2 atm FRZ: -257°F UEL: 21.7% LEL: 2.6%	None reported [Note: Inhibited with 0.2% terpenes to prevent polymeriza- tion.]	None available
1860 17	1 ppm = 1.91 mg/m ³							

Personal protection and sanitation (See Table 3)	Recommendations for respirator selection — maximum concentration for use (MUC) (See Table 4)	Health hazards			
		Route	Symptoms (See Table 5)	First aid (See Table 6)	Target organs (See Table 5)
Skin: Prevent skin contact (liq) Eyes: Prevent eye contact (liq) Wash skin: When contam (liq) Remove: When wet (flamm) Change: N.R.	NIOSH ¶: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOV/SCBAE	Inh Ing (liq) Con (liq)	Irrit eyes, skin; dizz, conf, inco, narco, nau, vomit; liq: frostbite; [carc]	Eye: Irr immed (liq) Skin: Water flush immed (liq) Breath: Resp support Swallow: Medical attention immed(liq)	Eyes, skin, CNS, liver [in animals: liver & lymph node tumors]
[Vinyl bromide]					
Skin: Frostbite Eyes: Frostbite Wash skin: N.R. Remove: When wet (flamm) Change: N.R. Provide: Frostbite	NIOSH ¶: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFS/SCBAE	Inh Con (liq)	Weak; abdom pain, GI bleeding; enlarged liver; pallor or cyan of extremities; liq: frostbite; [carc]	Eye: Frostbite Skin: Frostbite Breath: Resp support	Liver, CNS, blood, resp sys, lymphatic sys [liver cancer]
[Vinyl chloride]					
Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contam Remove: When wet or contam Change: N.R. Provide: Eyewash, Quick drench	NIOSH ¶: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOV/SCBAE	Inh Abs Ing Con	In animals: irrit eyes, skin, resp sys; testicular atrophy; leupen; necr thymus; skin sens; [carc]	Eye: Irr immed Skin: Water wash immed Breath: Resp support Swallow: Medical attention immed	Eyes, skin, resp sys, blood, thymus, repro sys [in animals: skin tumors]
[Vinyl cyclohexene dioxide]					
Skin: Frostbite Eyes: Frostbite Wash skin: N.R. Remove: When wet (flamm) Change: N.R. Provide: Frostbite	NIOSH 10 ppm: CCROV/SA 25 ppm: SA:CF/PAPROV 50 ppm: CCRFOV/GMFOV/PAPRTOV/ SCBAF/SAF 200 ppm: SAF:PD,PP §: SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOV/SCBAE	Inh Con (liq)	Head, dizz, conf, inco, narco, nau, vomit; liq: frostbite	Eye: Frostbite Skin: Frostbite Breath: Resp support	CNS
[Vinyl fluoride]					