

4/1/75

Methods of Compliance
to the Permissible Exposure Limits
OSHA Regulation 1910.93 q - Standard for Exposure to VCI

BFG Technical Center

OSHA regulation 1910.93q requires that employee exposures to vinyl chloride shall be controlled to 1 ppm or less of VCI averaged over any 8 hour period and that no employee shall be exposed to vinyl chloride at concentrations greater than 5 ppm averaged over any period not exceeding 15 minutes. If exposures are above this, feasible engineering and work practice controls shall immediately be used to reduce exposures to at or below the permissible exposure limits.

At the Technical Center we have on going programs in both the engineering and process departments. Written plans for these programs are attached and will be furnished upon request for examination and copying to authorized representatives of the assistant Secretary of Labor and the Director of OSHA. These plans will be updated at least every six months.

These plans will also be shown to employees who are exposed in excess of the permissible exposure limits to show them the steps being taken to reduce their exposure to within the permissible exposure limits.

VCM OSHA Administrator

LAB:jj

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AVON LAKE TECHNICAL CENTER VCM EMISSIONS CONTROL REPORT
STATUS REPORT

SPECIAL OBJECTIVE	PROJECT	COMP DATE	PERSONNEL ASSIGNED	ENG	COST TOTAL	REMARKS
<u>A. Engineering Projects</u>						
Divert VCM vapors now vented to room	Spot Ventilation	8-1-75	Gary Wilson Jim Ego	\$50,000	\$150,000	Integral part of general building vent & exhaust stack. Estimate covers design & installation of spot ventilation hoods & drops. 75% completed.
Disperse exhausted vapors higher in atmosphere	Bldg. 414 exhaust stack	Hold	Gary Wilson Jim Ego	\$33,000	\$120,000	Tie in all existing spot ventilation plus new spot ventilation into 30,000 CFM, 60' stack. (\$50,000 already appropriated by Cleveland). Job started. Currently in hold by Cleve. until gen.vent.has been resolved.
Insure adequate bldg. ventilation	Building ventilation a) B/414 E Emergency normal b) B/414 W " c) B/414 S " d) B/417 "	? 12-75 12-75 ?	Gary Wilson Jim Ego	\$75,000	\$600,000	Replace present heating- ventilation equipment with new heaters & emergency exhauster. Use spot vent- ilation where practical. Eliminate windows & repair all major air leaks in building. Emphasize good air distribution. Temporary is completed. Permanent is started. Detail estimate almost complete. Hope to submit EA in 2nd Quarter of '75.
Replace high emission source pilot plant equipment.	Replace present 15 g polys with 55 & 110 liter polys	1977	Gary Wilson Jim Ego	\$150,000	\$600,000	Installation of two new 55 liter polys with blow down tanks and stripping and drying system. 10% complete Reactors on order.

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SPECIAL OBJECTIVE	PROJECT	COMP DATE	PERSONNEL ASSIGNED	COST ENG	TOTAL	REMARKS
Minimize regulated areas	Consolidate VCM using laboratories a) construct analytic lab addition to B/423 b) Move 3.1 liter pol lab to B/414 c) Move general lab to B/414	HOLD	R. Cahill E. Webber Gary Wilson	\$50,000 \$35,000	\$500,000 \$115,000	Providing 7 bay, air conditioned, non-explosion proof lab & pilot plant for 3 55 & 110 liter polys with associated equipment. Block walls with insulation. Minimum air changes under normal operation, 30 air changes in emergency. Tie in to VCM, total hydrocarb on analyzer & alarm. Holding depending upon expansion of lab facilities & process bldg. vent design. Current lab levels have been greatly reduced.
Reduce or eliminate environmental emissions	RD & RV discharge control a) small polys b) large polys	1976	Smith	\$50,000	\$200,000	
Same as above	Design & construct a VCM recovery system for lost process.	1976	Glock Hubbard	\$40,000	\$160,000	
Same as above	Design & construct a VCM monomer disposal system	1976	Glock Hubbard	\$30,000	\$130,000	
Same as above	Spot ventilation exhaust.	10-1-75	Wilson Ego Freygang	\$25,000	\$100,000	
Eliminate employee exposure	Install a safe sampling station in B/414	10-1-75	Smith	\$ 2,000	\$ 12,000	20% complete
Eliminate the use of buckets of solvents for poly cleaning.	Design & install a safe solvent cleaning system in B/414	12-75	Smith	\$ 2,400	\$ 24,000	20% complete
Reduce VCI in air	Leak control	Contin.	Process & Maintenance			Continuing

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SPECIAL OBJECTIVE	PROJECT	COMP DATE	PERSONNEL ASSIGNED	ENG	COST TOTAL	REMARKS
a. Install a Bendix GC monitoring system in B/414 for VCI & ECH.	Monitoring System	7-1-75	Forsythe	\$6,400	\$44,270	
b. Install a Bendix total hydrocarbon monitoring system in B/413 for PVC laboratories						
Space for analytical groups	Coordinate B/414 Wes lab modifications	1976	R. Cahill E. Webber	\$9,800	\$98,241	
B. Process Projects						
Eliminate VCM exposure while sampling a reactor & subsequent weighing of sample.	1. Take sample in closed containers. 2. Wear respirators rubber gloves. 3. Weigh sample in well ventilated hood	Continuing	F. Zieber		0	
Eliminate VCM exposure while transferring a charge from poly to wash tank.	1) New stainless steel lines with sweeping bends have been installed to eliminate plugs and leaks.	Done	F. Zieber		0	
"	2) If line plugs, will use impervious suits, air masks, rubber gloves & rubber footwear while unplugging line.	Continuing	F. Zieber		0	
Eliminate VCM exposure while transferring resin from wash tank to filter box and transfer of wet cake to containers.	Strip charge in wash tank to eliminate residual VCM.	A poly done. Small polymerizers 9-1-75.	F. Zieber			Small polymerizers next. Must design and install a stripping unit.

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AVON LAKE TECHNICAL CENTER VCM EMISSIONS CONTROL REPORT
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SPECIAL OBJECTIVE	PROJECT	COMP DATE	PERSONNEL ASSIGNED	ENG	COST	TOTAL	REMARKS
Eliminate VCM exposure while removing manhead from reactor	After blowing down charge, boil out reactor with water and use a suction hose at manhead while loosening bolts. In addition atmosphere near manhead will be tested with an OVA meter while loosening bolts. If test shows VCM present, boil out reactor again.	6/75	F. Zieber		0		
Eliminate VCM exposure while centrifuging and straining resin from wash tank.	Properly strip charge in wash tank to eliminate residual VCM.	6/1/75	F. Zieber		0		
Eliminate VCM exposure while cleaning reactors.	1. Before entering a poly, take OVA readings of the interior. If above 5 ppm, boil out again. 2. When entering a poly, wear an impervious suit and air line mask, head covers, rubber gloves & rubber footwear.	4/1/75	F. Zieber		0		

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