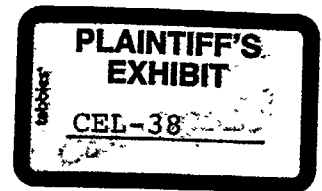


CELANESE CHEMICAL COMPANY
Chemcel Plant
Bishop, Texas



To: W. H. Meyer

From: Ann E. Retherford

AER-16-76

March 24, 1976

Organization of Occupational Safety and Health Administration
Compliance on Airborne Contaminants

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004012

CELANESE CHEMICAL COMPANY
Chemcel Plant
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From: Ann E. Retherford

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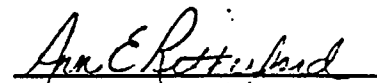
March 24, 1976

Organization of Occupational Safety and Health Administration
Compliance on Airborne Contaminants

To comply with the Occupational Safety and Health Administration's (OSHA) standards and proposed standards concerning air contaminants, it is necessary to initiate a program which will entail the surveying and monitoring of potentially hazardous substances in the plant. The following four points give a general idea of the program to be undertaken.

1. Survey each unit for all possible airborne contaminants as defined by OSHA (vapor and particulates). See Table I.
2. Omit monitoring for any contaminant which obviously will not pose a threat to employees. The asterisked (*) compounds in Table I are omission possibilities. Monitor for all other contaminants. (Table II contains acceptable OSHA exposure limits).
3. Establish a routine, periodic monitoring program, as required by OSHA, based on results of the initial monitoring program.
4. Organize an OSHA documentation system to enable the routine monitoring program to proceed smoothly.

It is my estimation that the initial monitoring program will require 6 months to complete. If the above plan is followed, allowing for modifications along the way, a well-developed program should be established by the end of 1976.


Ann E. Retherford

AER/dh
Attachments

See Attached Distribution List

004013

Table I

Tentative OSHA Monitoring Schedule⁽¹⁾

<u>AREA</u>	<u>Possible Airborne Contaminants</u>
BUTANOL	Nickel* Hydrogen (H ₂)* Butanol
PROPANOL	H ₂ * Propanol
BUTYRALDEHYDE	Rhodium* H ₂ * Carbon Monoxide (CO) Methylal Ethyl Acetate
LOADING RACK AND TANK CAR CLEANING	Butanol Propanol Diacetone Alcohol (DAA) Acetone Butyl Acetate Propyl Acetate Acetaldehyde Formaldehyde Methyl Ethyl Ketone
TRIMETHYLOLPROPANE	Formaldehyde (FoH) Ethyl Acetate Acrolein* Methylal*
PENTAERYTHRITOL	Acetaldehyde Formaldehyde PE - Dust Sodium Hydroxide* Ozone Acetic Acid Sulfuric Acid

*Possibly will not require monitoring. Employee exposure level assumed to be undetectable.

(1) Subject to change.

004014

Table I, Continued

<u>A R E A</u>	<u>Possible Airborne Contaminants</u>
DIACETONE ALCOHOL	Acetone Mesityl Oxide DAA
BUTYLENE GLYCOL	Acetaldehyde Acetic Acid Crotonaldehyde* Nickel* Butanol Sodium Hydroxide* H ₂ *
WEAK FORMALDEHYDE	Formaldehyde Methyl Formate
ESTER	Butyl Acetate Propyl Acetate Acetic Acid Butanol Propanol Isobutyl Acetate Isobutyl Alcohol
METHYLAL	FOH Methanol (MeOH) Methylal
FORMCELS	MeOH Butanol FOH
PARAFORM	Formaldehyde (Vapor and Dust)
MS	Carbon Dioxide (CO ₂) Methane (CH ₄) MeOH Iron Pentacarbonyl* CO H ₂ *

004015

Table I, Continued

<u>AREA</u>	<u>Possible Airborne Contaminants</u>
UTILITIES	CH ₄ CO ₂ * Dust (Hydrated Lime)
MO	Silver* Methanol Nitrogen (N ₂)* H ₂ * Methylal* Methyl Formate* Iron Pentacarbonyl* CO ₂ * CO* FoH
PLASTICS (VARIOUS UNITS)	Boron Trifluoride FoH Benzene Asbestos Carbon Black Cyclohexane Triethylamine Dust Methylal
MAINTENANCE	(Incomplete list - will depend on work area, but will include:) FoH Benzene DAA Butanol Propanol Butyl Acetate Propyl Acetate Oil Mist Methyl Ethyl Ketone Toluene

004016

Table II

Air Contaminant Exposure Limits
as Listed in Federal Register, Vol. 39, No. 125,
Occupational Safety and Health Administration

SUBSTANCE	8-Hour Time Weighted Average Exposure Limit		SUBSTANCE	8-Hour Time Weighted Average Exposure Limit	
	ppm	mg/m ³		ppm	mg/m ³
Acetaldehyde	200	360	Glass, Fibrous ^(1,4)		
Acetic Acid	10	25	Hydrogen ⁽²⁾		
Acetone	1,000	2,400	Iron Pentacarbonyl	0.01	0.08
Acrolein	0.1	0.25	Isobutyl Alcohol	100	300
Ammonia	50	35	Mesityl Oxide	25	100
Antimony	--	0.5	Methane ⁽²⁾		
Asbestos ⁽³⁾			Methanol	200	260
Benzene	10	--	Methyl Acetate	200	610
Boron Trifluoride	1	3	Methylal	1,000	3,100
2-Butanone (MEK)	200	590	Methyl Formate	100	250
Butyl Acetate	150	710	Nickel	--	1.0
Butyl Alcohol	100	300	Nitrogen ⁽²⁾		
Cadmium Fume		0.1	Ozone	0.1	0.2
Calcium Oxide	--	5	Pentaerythritol ⁽¹⁾		
Carbon Black		3.5	Phosphoric Acid	--	1.0
Carbon Dioxide	5,000	9,000	Propyl Acetate	200	840
Carbon Monoxide	50	55	Propyl Alcohol	200	500
Chromic Acid & Chromates		0.1	Pyridine	5	15
Crotonaldehyde	2	6	Rhodium		0.1
Cyclohexane	300	1,015	Silver		0.1
Diacetone Alcohol	50	240	Sodium Hydroxide		2.0
Ethyl Acetate	400	1,400	Sulfuric Acid		1.0
Formaldehyde (Vapor)	3	--	Triethylamine	25	100
Formaldehyde (Particulates) ⁽¹⁾			Trimethylolpropane ⁽¹⁾		

(1) Nuisance Particles - A threshold limit of 10 mg/m³, of total dust <1% quartz is recommended for substances in these categories. (Threshold Limit Values for Substances in Workroom Air, American Conference of Governmental Industrial Hygienists, p. 6).

(2) Simple asphyxiants "inert" gases and vapors. A threshold limit may not be recommended for each simple asphyxiant because the limiting factor is the available oxygen. The minimal O₂ content should be 18 percent by volume under normal atmospheric pressure (equivalent to a partial pressure, pO₂ of 135 mm Hg). (Threshold Limit Values for Substances in Workroom Air, American Conference of Governmental Industrial Hygienists; p. 6).

(3) The 8-hour time weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air. (Federal Register, Occupational Safety and Health Standards, Vol. 39, No. 125, p. 23543, Section 1910.93a).

(4) <5-7 µm in diameter.

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