



~~SECRET~~
Reader

Interoffice Communication

To Susan Litzau

From Tom Grumbles

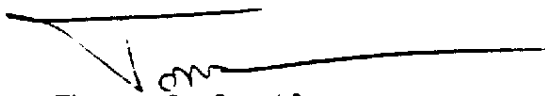
Date July 7, 1981

Subject INFORMATION REQUEST FROM PLAINTIFFS IN IOWA PVC CASE

Following are responses to the items in the subject request. Also, where applicable documents are enclosed. These responses are based on our understanding and interpretation of the scope of the questions.

1. Enclosed are Conoco Chemicals MSDS's prepared solely by the company. No such document or information was prepared in conjunction with CMA.
2. No safety guides of the CMA were found, nor do we have knowledge of such documents.
3. Conoco does not have on file the publications(s) Guidelines for Risk Evaluation and Loss Prevention in Chemical Plants.
4. Conoco does not have on file the publication, Index of Case Histories of Accidents in the Chemical Industry.
5. To the best of our knowledge there was no Chemical Safety Data Sheet published by CMA on PVC, PVC compounds and resins or PVC materials and products.
6. Enclosed is a bibliography list of technical/scientific publications by Conoco personnel concerning PVC, PVC compounds and resins and PVC materials and products.

As mentioned these responses are based on our understanding of the questions and a reasonable search of files and records.


Thomas G. Grumbles

ajo

Enclosures

CCR 000001965

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-11387

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME Conoco Chemicals		EMERGENCY TELEPHONE NO. 601/369-8111
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 91, Aberdeen, Mississippi 39730		
CHEMICAL NAME AND SYNONYMS Polyvinylchloride, PVC	TRADE NAME AND SYNONYMS CONOCO PVC	
CHEMICAL FAMILY Vinyl Polymers	FORMULA Dry Blend	(-CH₂CH-)_x

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADJUTIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Vinyl Chloride Monomer: less than 5 ppm		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	solid	SPECIFIC GRAVITY (H ₂ O=1)	
VAPOR PRESSURE (mm Hg.)	solid	PERCENT. VOLATILE BY VOLUME (%)	<0.5%
VAPOR DENSITY (AIR=1)	solid	EVAPORATION RATE (_____ =1)	solid
SOLUBILITY IN WATER	nil	Bulk Density	34 lbs. per cu.ft.
APPEARANCE AND ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Not applicable	FLAMMABLE LIMITS	LM	UM
EXTINGUISHING MEDIA er, CO₂, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES Use respirator.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Evolves hydrogen chloride when burned			

SECTION V - HEALTH HAZARD DATA

THA TOLD LIMIT VALUE

Exposure to PVC as such poses no overt hazard.

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STL TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep up.

WASTE DISPOSAL METHOD

Prefer landfill rather than incineration.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Face mask for dusty operations.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES

None

EYE PROTECTION

Safety glasses

OTHER PROTECTIVE EQUIPMENT

Ground lines on transfer equipment

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OT PRECAUTIONS

Observe OSHA regulation in Title 29, CFR, Part 1910.1017.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-11187

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME Conoco Chemicals		EMERGENCY TELEPHONE NO. 601/369-8111
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 91, Aberdeen, Mississippi 39730		
CHEMICAL NAME AND SYNONYMS Polyvinylchloride, PVC		TRADE NAME AND SYNONYMS CONOCO PVC Resin
CHEMICAL FAMILY Vinyl Polymers	FORMULA $(-CH_2CH-)_x$ Cl	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADJUVANTS			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
Vinyl Chloride Monomer; less than 10 ppm		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	solid	SPECIFIC GRAVITY (H ₂ O=1)	1.4
VAPOR PRESSURE (mm Hg.)	solid	PERCENT. VOLATILE BY VOLUME (%)	<0.5%
VAPOR DENSITY (AIR=1)	solid	EVAPORATION RATE (_____ = 1)	solid
SOLUBILITY IN WATER	nil		
APPEARANCE AND ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Not applicable	FLAMMABLE LIMITS	LM	UM
EXTINGUISHING MEDIA Water, CO₂, dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES Use respirator.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Evolves hydrogen chloride when burned			

CCR 000001968

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

Exposure to PVC as such poses no overt hazard. In confined usage or storage areas, use adequate ventilation.

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STeps TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Sweep up.

WASTE DISPOSAL METHOD

Prefer landfill rather than incineration.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)
Face mask for dusty operations.

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER

PROTECTIVE GLOVES None	EYE PROTECTION Safety glasses
---------------------------	----------------------------------

OTHER PROTECTIVE EQUIPMENT
Ground lines on transfer equipment

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Use adequate ventilation in handling PVC and in bag/box storage areas.

OTHER PRECAUTIONS
See OSHA regulation in Title 29, CFR, Part 1910.1017

CCR 000001969

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-11187

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME

Conoco Chemicals

EMERGENCY TELEPHONE NO.

601/369-8111

ADDRESS (Number, Street, City, State, and ZIP Code)

P. O. Box 91, Aberdeen, Mississippi 39730

CHEMICAL NAME AND SYNONYMS

Polyvinylchloride, PVC

TRADE NAME AND SYNONYMS

CONOCO PVC Compound

CHEMICAL FAMILY

Vinyl Polymers

FORMULA

$(-CH_2CH-)_x$

Cl

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIONAL INGREDIENTS			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Vinyl Chloride Monomer: less than 25 ppm

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	solid	SPECIFIC GRAVITY (H ₂ O=1)	
VAPOR PRESSURE (mm Hg.)	solid	PERCENT. VOLATILE BY VOLUME (%)	<0.5%
VAPOR DENSITY (AIR=1)	solid	EVAPORATION RATE (_____ =1)	solid
SOLUBILITY IN WATER	nil		
APPEARANCE AND ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
Not applicable			
EXTINGUISHING MEDIA			
Water, CO ₂ , dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES			
USE RESPIRATOR.			

UNUSUAL FIRE AND EXPLOSION HAZARDS

Evolves hydrogen chloride when burned

CCR 000001970

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

Exposure to PVC as such poses no overt hazard.

EMERGENCY AND FIRST AID PROCEDURES

SECTION VI - REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

See p. 1.

WASTE DISPOSAL METHOD

Prefer landfill rather than incineration.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

Face mask for dusty operations.

VENTILATION

LOCAL EXHAUST

SPECIAL

MECHANICAL (General)

OTHER

PROTECTIVE GLOVES

None

EYE PROTECTION

Safety glasses

OTHER PROTECTIVE EQUIPMENT

Ground lines on transfer equipment

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

Observe OSHA regulation in Title 29, CFR, Part 1910.1017.

CCR 000001971

Technical Literature - Plastics

4. CSL TECHNICAL PAPERS

Reprints of the following technical papers by Conoco personnel are available from the Director, PVC Research Section, Chemicals Research and Development, Ponca City. (See p. 8-2.)

A. Resin

1. "Trends in Suspension PVC Manufacture," J. B. Cameron, A. J. Lundeen, and J. H. McCulley, Hydrocarbon Processing, Vol. 59, No. 3, pp. 39-50, March 1980.
2. "Polyvinyl Chloride, Its Copolymers and Related Vinyl Polymers," D. V. Porchey and H. J. Hall, Modern Plastics Encyclopedia, Vol. 55, No. 10A, pp. 97-102 (1978-79).
3. "PVC—An Industry Comeback," W. R. Sorenson, SPE, Bartlesville/Tulsa Section, March 1977.
4. "A Close Look at PVC Today," W. R. Sorenson, Plastics Engineering, p. 22, April 1977.
5. "PVC Today," W. R. Sorenson, SPE RETREC, March 1977.
6. "Removal of Vinyl Chloride," J. F. Scamehorn, Industrial and Engineering Chemistry Process Design & Development, Vol. 18, No. 2, p. 210 (1979).
7. "Diffusion of Vinyl Chloride in PVC," J. F. Scamehorn and K. Yang, 70th AIChE, November 1979.
8. "Equilibrium Water Behavior in PVC Resin," J. F. Scamehorn, J. A. Wingrave, and K. Yang, 23rd Pentasectional, Oklahoma Sections of ACS (1977).
9. "Solubility of Vinyl Chloride in Polyvinyl Chloride in Water Slurry," J. F. Scamehorn and K. Yang, Polymer Engineering and Science, Vol. 18, p. 841 (1978).
10. "The Effect of VCM Removal on Commercial Pipe Grade PVC Resin," J. A. Wingrave, 35th ANTEC, SPE, Vol. 23, p. 264 (1977).
11. "Fluidized Bed Drying of Polyvinyl Chloride," D. V. Porchey, Chemical Processing, Vol. 38, No. 11, pp. 18-19, November 1975.
12. "The Effect of a Modified Weber Number on Resin Properties During VCM Suspension Polymerization," G. R. Johnson, 71st AIChE, November 1978.

Technical Literature - Plastics

13. "Electrolytic Conductance in PVC Compounds I. Wien Effect Deviations from Ohm's Law," J. A. Wingrave, 37th ANTEC, SPE, p. 389 (1979).
14. "Electrical Behavior of Poly(Vinyl Chloride) II. Wien-Onsager Effect Deviations from Ohm's Law," J. A. Wingrave, 37th ANTEC, SPE, May 1979.
15. "Electrical Behavior of Polyvinyl Chloride III. Theoretical Treatment of Wien-Onsager Effect," J. A. Wingrave, 34th Southwest Regional ACS, November 1979.
16. "The Effect of Type and Concentration of Ionic Impurities on the Electrical Resistivity of Poly(Vinyl Chloride)," J. A. Wingrave, 36th ANTEC, SPE, p. 580, May 1978.
17. "Pyrolysis of PVC and Experimental PVC Compounds Using TGA, Furnace and Oven Techniques with Recovery Studies of HCl," A. B. Carel, 27th International Wire and Cable Symposium, November 1978.
18. "Automated Method for Measuring the Thermal Degradation of Polyvinyl Chloride," J. W. Wimberly, A. B. Carel, and D. K. Cabiness, 27th International Wire and Cable Symposium, November 1978.
19. "PVC--An Industry in Transition," H. R. Flammer, Journal of Vinyl Technology, Vol. 1, No. 4, December 1979.

B. Dryblend

1. "Rheology of Poly(Vinyl Chloride) Dry Blends II. Mathematical Modeling for Physical Changes in Processing," J. A. Wingrave and M. C. Peden, 38th ANTEC, SPE, May 1980 (to be published in Journal of Vinyl Technology).
2. "Rheology of Poly(Vinyl Chloride) Dryblends I. A Fusion Model for Evaluating Rigid Dry Blend Compound Performance," J. A. Wingrave and M. C. Peden, Journal of Vinyl Technology, Vol. 1, No. 2, p. 107 (1979).

C. Compound

1. "Flame Retardants in PVC," E. R. Cox, 27th International Wire and Cable Symposium, November 1978.

Technical Literature - Plastics

2. "Low Fogging Plasticizers for Automotive Interiors," J. L. Irvine and S. E. McGuire, Plastics Engineering, Vol. 34, No. 2, p. 35 (1978).
3. "Behavior of Plasticizers in Poly(Vinyl Chloride) Resins I. A Method for Measuring Dynamic Plasticizer Absorption in Suspension Resin Grains," J. A. Wingrave, 38th ANTEC, SPE, May 1980 (to be published in Journal of Vinyl Technology).

CCR 000001974

Issued: 11/1/80
Replaces:

8-18