



MATERIAL SAFETY DATA SHEET

NUMBER

169

(Approved by U.S. Department of Labor as "essentially similar" to FORM OSHA-20)

SECTION I IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME Tenneco Chemicals, Inc. ORGANICS & POLYMERS DIVISION	EMERGENCY TELEPHONE NO. (609) 386-9200
ADDRESS TURNER PLACE, P.O. BOX 365, PISCATAWAY, NEW JERSEY 08854	
TRADE NAME AND SYNONYMS TENNECO PVC COMPOUND, RIGID 3711, 3750, 4703	
CHEMICAL NAME AND SYNONYMS POLY(VINYL CHLORIDE) COMPOUND	
CHEMICAL FAMILY CHLOROHYDROCARBON POLYMER	MOLECULAR FORMULA (CH₂CHCl)_n
	MOL. WT.

SECTION II HAZARDOUS COMPONENTS OF MIXTURES

COMPONENT	%	THRESHOLD LIMIT VALUE	COMPONENT	%	THRESHOLD LIMIT VALUE
CARBON BLACK (0-0.6%)	-	3.5 mg/m ³			
LEAD COMPOUNDS (0-4%)	-	0.2 mg/m ³			
MINERAL OIL (0-0.5%)	-	5 mg/m ³			
TIN ORGANIC COMPOUND (0-2%)	-	0.1 mg/m ³			
TITANIUM DIOXIDE (0-1%)	-	15 mg/m ³			

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR WHITE, BLACK OR COLORED PELLETS, PRACTIALLY ODORLESS.	
BOILING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE	MELTING POINT (DEGREES FAHRENHEIT) Not applicable Softens about 160-180°F.
VAPOR PRESSURE (MM OF MERCURY) NOT APPLICABLE	SPECIFIC GRAVITY (WATER = 1) 1.32 - 1.42
VAPOR DENSITY (AIR = 1) NOT APPLICABLE	PERCENT VOLATILE (BY WEIGHT) Essentially non-volatile
SOLUBILITY IN WATER NEGLIGIBLE	EVAPORATION RATE (BUTYL ACETATE = 1) Not applicable.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD) Ignition about 735°F (DEGREES FAHRENHEIT) Auto-ignition about 850°F (ASTM D-1929)	FLAMMABLE LIMITS (PERCENT BY VOLUME) Not applicable	LOWER	UPPER
FIRE EXTINGUISHING MEDIA Water spray, carbon dioxide or dry chemical.			
SPECIAL FIRE-FIGHTING PROCEDURES Water spray or fog may be helpful in reducing flame intensity and absorbing irritating fumes. Shut off current in electrical equipment or wiring.			
UNUSUAL FIRE AND EXPLOSION HAZARDS NFPA lists ignition temperature of 752°F for layer and 1220°F for PVC dust cloud. Produces combustible gases above 570°F. Fire conditions produce hydrogen chloride, requiring protective equipment.			

TEN0134

SECTION V HEALTH HAZARD DATATHRESHOLD LIMIT VALUE
SEE SECTION II

EFFECTS OF OVEREXPOSURE None expected in normal handling. (Processing at high temperatures produces fumes irritating to eyes and respiratory tract, requiring local exhaust.)

EMERGENCY AND FIRST AID PROCEDURES

Ordinary measures of personal hygiene. (See Section IX.)

(In case of exposure in hot processing move to fresh air, flush eyes with water.)

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID Normal processing temperature, about 350°F, causes slow darkening and decomposition. Higher heat increases rate and evolution of HCl.
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

None in ordinary use. Soluble in certain ketones and organic solvents.

HAZARDOUS DECOMPOSITION PRODUCTSThermal decomposition produces HCl, and CO and CO₂ (above 570°F).

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID None in ordinary use.
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep up and remove to disposal container.

WASTE DISPOSAL METHOD

Bury in an approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION**RESPIRATORY PROTECTION (Specify type)**

None required in ordinary handling. See Section IX.

VENTILATION	LOCAL EXHAUST For hot processing.	SPECIAL Vent to stack or scrubber.
	MECHANICAL (General) For ordinary handling.	OTHER Ventilate enclosed spaces.

PROTECTIVE GLOVES Cotton gloves for hot processing.	EYE PROTECTION Safety glasses.
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OTHER PROTECTIVE EQUIPMENT None required for ordinary handling. For hot processing local exhaust, safety glasses and gloves are recommended.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING OSHA Standard 1910.1017 (.93) on vinyl chloride limits exposure to 1 ppm (8 hour av.) and requires monitoring and other precautions storage, handling and use of polyvinyl chloride, including labeling "Contains Vinyl Chloride -- Vinyl Chloride is a Cancer-Suspect Agent", excepting "fabricated products" not subject to "mass melting," as defined. New, low monomer content PVC compounds simplify operation below the OSHA 0.5ppm action level and compliance, assuming normal conditions and ventilation in a processor's work area. Further developments on resins and regulations are pending.

TEN0 135

DATE 6/17/75	NAME AND TITLE T. R. Aalto, Manager, Product Safety Services	SHEET NUMBER 169
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MATERIAL SAFETY DATA SHEET

168

(Approved by U.S. Department of Labor as "essentially similar" to FORM OSHA-20)

SECTION I IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME Tenneco Chemicals, Inc. - ORGANICS & POLYMERS DIVISION	EMERGENCY TELEPHONE NO. (609) 386-9200
ADDRESS TURNER PLACE, P.O. BOX 365, PISCATAWAY, NEW JERSEY 08854	
TRADE NAME AND SYNONYMS TENNECO PVC COMPOUND, RECORD 3805D, 3806, 4716, CD-01252	
CHEMICAL NAME AND SYNONYMS VINYL CHLORIDE - VINYL ACETATE COPOLYMER	
CHEMICAL FAMILY CHLOROHYDROCARBON COPOLYMER	MOLECULAR FORMULA $\{CH_2CHCl\}_x \{CH_2CHOCOCH_3\}_y$
MOL. WT.	

SECTION II HAZARDOUS COMPONENTS OF MIXTURES

COMPONENT	%	THRESHOLD LIMIT VALUE	COMPONENT	%	THRESHOL LIMIT VALUE
CARBON BLACK (0.1 - 1%)	-	3.5 mg/m ³			
LEAD COMPOUNDS (0-2%)	-	0.2 mg/m ³			
TIN ORGANIC COMP. (0-2%)	-	0.1 mg/m ³			

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR BLACK PELLETS, PRACTICALLY ODORLESS	
BOILING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE	MELTING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE SOFTENS ABOUT 140-160°F
VAPOR PRESSURE (MM. OF MERCURY) NOT APPLICABLE	SPECIFIC GRAVITY (WATER = 1) 1.35 - 1.39
VAPOR DENSITY (AIR = 1) NOT APPLICABLE	PERCENT VOLATILE (BY WEIGHT) ESSENTIALLY NON-VOLATILE
SOLUBILITY IN WATER NEGLIGIBLE	EVAPORATION RATE (BUTYL ACETATE = 1) NOT APPLICABLE

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD) (DEGREES FAHRENHEIT) for PVC (ASTM-D-1929)	IGNITION ABOUT 735°F	FLAMMABLE LIMITS (PERCENT BY VOLUME)	LOWER NOT APPLICABLE	UPPER
FIRE EXTINGUISHING MEDIA WATER SPRAY, CARBON DIOXIDE OR DRY CHEMICAL				
SPECIAL FIRE-FIGHTING PROCEDURES Water spray or fog may be helpful in reducing flame intensity and absorbing irritating fumes. Shut off current in electrical equipment or wiring.				
UNUSUAL FIRE AND EXPLOSION HAZARDS NFPA lists ignition temperature of 608°F. for PVC-plasticizer dust cloud and minimum concentration of 0.035 oz/cu ft. Fire conditions produce hydrogen chloride, requiring protective equipment.				

TEN0136

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
SECTION II

EFFECTS OF OVEREXPOSURE None expected in normal handling. (Processing at high temperatures produces fumes irritating to eyes and respiratory tract, requiring local exhaust.)

EMERGENCY AND FIRST AID PROCEDURES

Ordinary measures of personal hygiene. (See Section IX.)

(In case of exposure in hot processing move to fresh air, flush eyes with water.)

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID Normal processing temperature, about 350°F, causes slow darkening and decomposition. Higher heat increases rate and evolution of HCl.
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

None in ordinary use. Soluble in certain ketones and organic solvents.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition produces HCl, and CO and CO₂ (above 570°F).

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID None in ordinary use.
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STeps TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep up and remove to disposal container.

WASTE DISPOSAL METHOD

Bury in an approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

None required in ordinary handling. See Section IX.

VENTILATION	LOCAL EXHAUST For hot processing.	SPECIAL Vent to stack or scrubber.
	MECHANICAL (General) For ordinary handling.	OTHER Ventilate enclosed spaces.

PROTECTIVE GLOVES Cotton gloves for hot processing.	EYE PROTECTION Safety glasses.
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OTHER PROTECTIVE EQUIPMENT None required for ordinary handling. For hot processing local exhaust, safety glasses and gloves are recommended.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING OSHA Standard 1910.1017 (.93q) on vinyl chloride limits exposure to 1 ppm (8 hour av.) and requires monitoring and other precautions storage, handling and use of polyvinyl chloride, including labeling "Contains Vinyl Chloride -- Vinyl Chloride is a Cancer-Suspect Agent", excepting "fabricated products" not subject to "mass melting," as defined. New, low monomer content PVC compounds simplify operation below the OSHA 0.5ppm action level and compliance, assuming normal conditions and ventilation in a processor's work area. Further developments on resins and regulations are pending.

TEN0 137



MATERIAL SAFETY DATA SHEET

167

(Approved by U.S. Department of Labor as "essentially similar" to FORM OSHA-20)

SECTION I IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME Tenneco Chemicals, Inc. ORGANICS & POLYMERS DIVISION		EMERGENCY TELEPHONE (609) 386-9200
ADDRESS TURNER PLACE, P.O. BOX 365, PISCATAWAY, NEW JERSEY 08854		
TRADE NAME AND SYNONYMS TENNECO PVC COMPOUND, EXTRUSION AND MOLDING		3066, 3078, 3083, 3086, 3098, 3159, 3160, 3169, 3179, 3189, 3063, 3092, 3153M, 3200
CHEMICAL NAME AND SYNONYMS POLY(VINYL CHLORIDE) COMPOUND, PLASTICIZED (FLEXIBLE)		3211
CHEMICAL FAMILY CHLOROHYDROCARBON POLYMER	MOLECULAR FORMULA (CH₂CHCl)_n	MOL. WT.

SECTION II HAZARDOUS COMPONENTS OF MIXTURES

COMPONENT	%	THRESHOLD LIMIT VALUE	COMPONENT	%	THRESHOLD LIMIT VALUE
BARIUM COMPOUNDS (0-1.3%)	-	0.5 mg/m ³	TITANIUM DIOXIDE (0-1%)	-	15 mg/m ³
DIETHYLHEXYL PHTHALATE (0-38%)	-	5 mg/m ³	CARBON BLACK (0-0.5%)	-	3.5 mg/m ³
MINERAL OIL (0-0.8%)	-	5 mg/m ³			
TIN ORGANIC COMP. (0-2.3%)	-	0.1 mg/m ³			

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR COLORLESS, WHITE, BLACK OR COLORED PELLETS, PRACTICALLY ODORLESS.	
BOILING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE	MELTING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE SOFTENS ABOUT 160 - 180°F.
VAPOR PRESSURE (MM. OF MERCURY) NOT APPLICABLE	SPECIFIC GRAVITY (WATER = 1) 1.22 - 1.40
VAPOR DENSITY (AIR = 1) NOT APPLICABLE	PERCENT VOLATILE (BY WEIGHT) ESSENTIALLY NON-VOLATILE
SOLUBILITY IN WATER NEGLEGIBLE	EVAPORATION RATE (BUTYL ACETATE = 1) NOT APPLICABLE

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD) (DEGREES FAHRENHEIT) NOT APPLICABLE	FLAMMABLE LIMITS (PERCENT BY VOLUME) NOT APPLICABLE	LOWER	UPPER
FIRE EXTINGUISHING MEDIA WATER SPRAY, CARBON DIOXIDE OR DRY CHEMICAL			
SPECIAL FIRE-FIGHTING PROCEDURES WATER SPRAY OR FOG MAY BE HELPFUL IN REDUCING FLAME INTENSITY AND ABSORBING IRRITATING FUMES. SHUT OFF CURRENT IN ELECTRICAL EQUIPMENT OR WIRING.			
UNUSUAL FIRE AND EXPLOSION HAZARDS NFPA LISTS IGNITION TEMPERATURE OF 608°F FOR PVC - PLASTICIZER DUST CLOUD AND MINIMUM CONCENTRATION OF 0.035 oz/cu. ft. FIRE CONDITIONS PRODUCE HYDROGEN CHLORIDE, REQUIRING PROTECTIVE EQUIPMENT.			

TEN0138

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
SEE SECTION II

EFFECTS OF OVEREXPOSURE None expected in normal handling. (Processing at high temperatures produces fumes irritating to eyes and respiratory tract, requiring local exhaust.)

EMERGENCY AND FIRST AID PROCEDURES

Ordinary measures of personal hygiene. (See Section IX.)

(In case of exposure in hot processing move to fresh air, flush eyes with water.)

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID Normal processing temperature, about 350°F, causes slow darkening and decomposition. Higher heat increases rate and evolution of HCl.
	STABLE	X	

INCOMPATIBILITY (Materials to avoid)

None in ordinary use. Soluble in certain ketones and organic solvents.

HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition produces HCl, and CO and CO₂ (above 570°F).

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID None in ordinary use.
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep up and remove to disposal container.

WASTE DISPOSAL METHOD

Bury in an approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

None required in ordinary handling. See Section IX.

VENTILATION	LOCAL EXHAUST For hot processing.	SPECIAL Vent to stack or scrubber.
	MECHANICAL (General) For ordinary handling.	OTHER Ventilate enclosed spaces.

PROTECTIVE GLOVES Cotton gloves for hot processing.	EYE PROTECTION Safety glasses.
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OTHER PROTECTIVE EQUIPMENT None required for ordinary handling. For hot processing local exhaust, safety glasses and gloves are recommended.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING OSHA Standard 1910.1017 (.93g) on vinyl chloride limits exposure to 1 ppm (8 hour av.) and requires monitoring and other precautions storage, handling and use of polyvinyl chloride, including labeling "Contains Vinyl Chloride -- Vinyl Chloride is a Cancer-Suspect Agent", excepting "fabricated products" not subject to "mass melting," as defined. New, low monomer content PVC compounds simplify operation below the OSHA 0.5ppm action level and compliance, assuming normal conditions and ventilation in a processor's work area. Further developments on resins and regulations are pending.

TEN0130

DATE 6/17/75	NAME AND TITLE T. R. Aalto, Manager, Product Safety Services	SHEET NUMBER 167
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MATERIAL SAFETY DATA SHEET

166

(Approved by U.S. Department of Labor as "essentially similar" to FORM OSHA-20)

SECTION I IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME Tenneco Chemicals, Inc. ORGANICS & POLYMERS DIVISION		EMERGENCY TELEPHONE NO. (609) 386-9200
ADDRESS TURNER PLACE, P.O. BOX 365, PISCATAWAY, NEW JERSEY 08854		
TRADE NAME AND SYNONYMS TENNECO PVC COMPOUND, WIRE AND CABLE		2022, 2022A, 2024, 2052, 2060, 2300, 2385, 2580
CHEMICAL NAME AND SYNONYMS POLY(VINYL CHLORIDE) COMPOUND, PLASTICIZED (FLEXIBLE)		2700, 2710C, 2710C4, 2712, 2714, 2730, 2775, 2800, 2803, 2804, 2814, 2814-1F, 2820, 2825, 2826, 2880, 2900, 2901-1, 2905, 2908, 2914, 29
CHEMICAL FAMILY CHLOROHYDROCARBON POLYMER	MOLECULAR FORMULA (CH₂CHCl)_n	MOL. WT.

SECTION II HAZARDOUS COMPONENTS OF MIXTURES

COMPONENT	%	THRESHOLD LIMIT VALUE	COMPONENT	%	THRESHOLD LIMIT VALUE
ANTIMONY COMPOUNDS (0-2.5%)	0.5mg/m ³	(UNITS)	LEAD COMPOUNDS (0-6%)	0.2mg/m ³	(UNITS)
BARIUM COMPOUNDS (0-0.8%)	0.5mg/m ³		MINERAL OIL (0-0.3%)	5 mg/m ³	
CARBON BLACK (0-1.2%)	3.5mg/m ³		TITANIUM DIOXIDE (0-7%)	15 mg/m ³	
DIETHYLHEXYL PHTHALATE (0-30%)	5 mg/m ³				
DIGLYCIDYL ETHER (0-0.2%)	0.5 ppm				

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR COLORLESS, WHITE, BLACK OR COLORED PELLETS, PRACTICALLY ODORLESS	
BOILING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE	MELTING POINT (DEGREES FAHRENHEIT) NOT APPLICABLE SOFTENS ABOUT 160-180°F
VAPOR PRESSURE (MM. OF MERCURY) NOT APPLICABLE	SPECIFIC GRAVITY (WATER = 1) 1.22 - 1.48
VAPOR DENSITY (AIR = 1) NOT APPLICABLE	PERCENT VOLATILE (BY WEIGHT) ESSENTIALLY NON-VOLATILE
SOLUBILITY IN WATER NEGLEGIBLE	EVAPORATION RATE (BUTYL ACETATE = 1) NOT APPLICABLE

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (SPECIFY METHOD) (DEGREES FAHRENHEIT) Plasticizer generally over 400°F, COC	FLAMMABLE LIMITS (PERCENT BY VOLUME) NOT APPLICABLE.	LOWER	UPPER
FIRE EXTINGUISHING MEDIA Water spray, carbon dioxide or dry chemical			
SPECIAL FIRE FIGHTING PROCEDURES Water spray or fog may be helpful in reducing flame intensity and absorbing irritating fumes. Shut off current in electrical equipment or wiring.			
UNUSUAL FIRE AND EXPLOSION HAZARDS NFPA lists ignition temperature of 608°F. for PVC-plasticizer dust cloud and minimum concentration of 0.035 oz/cu. ft. Fire conditions produce hydrogen chloride, requiring protective equipment.			

TEN0140

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
SEE SECTION II

EFFECT OF OVEREXPOSURE None expected in normal handling. (Processing at high temperatures produces fumes irritating to eyes and respiratory tract, requiring local exhaust.)

EMERGENCY AND FIRST AID PROCEDURES

Ordinary measures of personal hygiene. (See Section IX.)

(In case of exposure in hot processing move to fresh air, flush eyes with water.)

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID Normal processing temperature, about 350°F, causes slow darkening and decomposition. Higher heat increases rate and evolution of HCl.
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) None in ordinary use. Soluble in certain ketones and organic solvents.			
HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition produces HCl, and CO and CO ₂ (above 570°F).			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID None in ordinary use.
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep up and remove to disposal container.

WASTE DISPOSAL METHOD

Bury in an approved landfill.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

None required in ordinary handling. See Section IX.

VENTILATION	LOCAL EXHAUST For hot processing.	SPECIAL Vent to stack or scrubber.
	MECHANICAL (General) For ordinary handling.	OTHER Ventilate enclosed spaces.
PROTECTIVE GLOVES Cotton gloves for hot processing.		EYE PROTECTION Safety glasses.
OTHER PROTECTIVE EQUIPMENT None required for ordinary handling. For hot processing local exhaust, safety glasses and gloves are recommended.		

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING OSHA Standard 1910.1017 (.93q) on vinyl chloride limits exposure to 1 ppm (8 hour av.) and requires monitoring and other precautions storage, handling and use of polyvinyl chloride, including labeling "Contains Vinyl Chloride -- Vinyl Chloride is a Cancer-Suspect Agent", excepting "fabricated products" not subject to "mass melting," as defined. New, low monomer content PVC compounds simplify operation below the OSHA 0.5ppm action level and compliance, assuming normal conditions and ventilation in a processor's work area. Further developments on resins and regulations are pending.

TENO 141

DATE 6/17/75	NAME AND TITLE T. R. Aalto, Manager, Product Safety Services	SHEET NUMBER 166
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