

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

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

September, 1978

SECTION I

MANUFACTURER'S NAME PPG Industries, Inc.		EMERGENCY TELEPHONE NO. (304) 843-1300
ADDRESS (Number, Street, City, State, and ZIP Code) One Gateway Center, Pittsburgh, PA 15222		
CHEMICAL NAME AND SYNONYMS (% by volume) Trichloroethane and 25% perchloroethylene		TRADE NAME AND SYNONYMS CSM-320
CHEMICAL FAMILY Chlorinated hydrocarbons	FORMULA 1,1,1 Trichloroethane-CH ₃ CCl ₃ ; Perchlor-C ₂ Cl ₄	

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		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES (% by Volume)				%	TLV (Units)
Stabilized 1,1,1 Trichloroethane				75	350 (ppm)
Stabilized Perchloroethylene				25	100 (ppm)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	(81.2°C)	178.2	SPECIFIC GRAVITY (H ₂ O=1)	1.381
VAPOR PRESSURE (mm Hg.)		Unknown	PERCENT, VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)		4.86	EVAPORATION RATE (_____ = 1)	UNKNOWN
SOLUBILITY IN WATER g/100g of H ₂ O		0.35		
APPEARANCE AND ODOR Colorless, clear liquid, ethereal odor				

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) None (tag, open or closed)	FLAMMABLE LIMITS	LeI None	UeI None
EXTINGUISHING MEDIA Water, dry chemical, or CO ₂ (for fires involving CSM-320)			
SPECIAL FIRE FIGHTING PROCEDURES Wear a NIOSH/MHSA-approved, self-contained breathing apparatus during fire fighting.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors can be ignited by high intensity heat sources (above 1300°F) forming hydrogen chloride gas and traces of phosgene.			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE (See attached sheet)	
EFFECTS OF OVEREXPOSURE	See attached sheet
EMERGENCY AND FIRST AID PROCEDURES	See attached sheet

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID Avoid flames, hot glowing surfaces, electrical
	STABLE	X	arcs.
INCOMPATIBILITY (Materials to avoid)		See attached sheet	
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen chloride gas, and traces of phosgene.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID None
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED See attached sheet	
WASTE DISPOSAL METHOD EPA-approved incineration or contact local waste disposal contractor.	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type) See attached sheet			
VENTILATION	LOCAL EXHAUST		SPECIAL
	MECHANICAL (General)	Sufficient to maintain workplace concentration below TLV	OTHER
PROTECTIVE GLOVES Polyethylene, neoprene or polyvinyl alcohol		EYE PROTECTION Splash-proof goggles	
OTHER PROTECTIVE EQUIPMENT		Eye-wash fountain	

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	See attached sheet
OTHER PRECAUTIONS	See attached sheet

ADDENDUM TO MATERIAL SAFETY DATA SHEET ON CSM-320

(SEPTEMBER, 1978)

SECTION V - HEALTH HAZARD DATA

Threshold Limit Value

The individual TLV's are 350 ppm for 1,1,1-trichloroethane and 100 ppm for perchlor. Consult 29 CFR 1910.1000 for details or the method for calculating permissible exposure limits for mixtures.

Acute Toxicity Values

No tests have been run on this blend of solvents. The following is data on the toxicity of the individual components.

1,1,1-Trichloroethane⁽¹⁾--Oral LD₅₀ (rat): 10-12 gm/kg
Oral LD₅₀ (rabbits, guinea pig):
5.6-9.5 gm/kg
Inhalation LC₅₀ (rat): 8000 ppm/7 hours

Perchlor⁽¹⁾--Oral LD₅₀ (rabbit): 5000 mg/kg
Inhalation LCL₀ (rat): 4000 ppm (4 hours)

Effects of Overexposure

Acute: Irritant and central nervous system depressant. Inhalation can cause irritation of the respiratory tract, dizziness, nausea, headache, loss of coordination and equilibrium, unconsciousness and even death in confined or poorly ventilated areas.

Fatalities following severe acute exposure have been attributed to ventricular fibrillation. Ventricular arrhythmia may be induced with sensitization to epinephrine.

Eye contact can result in discomfort, pain and mild conjunctivitis. Prolonged or repeated contact with the skin can cause irritation and dermatitis.

Chronic: May damage the liver and kidneys upon prolonged or repeated inhalation of vapors.

Emergency and First Aid Procedures

Inhalation Overexposure: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If

breathing is difficult, give oxygen. Call a physician.

Note to Physician: Avoid use of adrenalin in any case where a person has been overcome by perchloroethylene or 1,1,1-trichloroethane.

Eye Contact: Flush with plenty of water for at least 15 minutes. If irritation occurs, consult a physician.

Skin Contact: Wash thoroughly with plenty of soap and water. If irritation occurs, consult a physician.

Swallowing: If conscious, drink a quart of water then induce vomiting by placing a finger far back in the throat. Call a physician. If vomiting cannot be induced, take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital or physician. DO NOT induce vomiting or give anything by mouth.

SECTION VI - REACTIVITY DATA

Incompatibility

Avoid contact with caustic soda and caustic potash (may react to form explosive compounds), acids and water (may cause decomposition of the solvent.)

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

Immediately evacuate area and provide maximum ventilation. Only personnel equipped with proper respiratory and skin/eye protection should be allowed in area. Collect spilled material on sawdust or vermiculite and sweep into closed containers for disposal. Then flush area with plenty of water and maintain ventilation until vapors are eliminated.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection

NIOSH/MHSA-approved organic vapor respirator for concentrations below 1000 ppm. For 1000 ppm and above, use air-supplied respiratory protection. Consult 29 CFR 1910.134 for details.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

- o Do not use in poorly ventilated or confined spaces.
- o Keep containers tightly closed when not in use.

- o Do not store in open, unlabeled or mislabeled containers.

Other Precautions

- o Avoid prolonged or repeated breathing of vapor.
- o Use only with ventilation sufficient to limit employee exposure as far below OSHA permissible exposure limit as practical.
- o Avoid contact with eyes.
- o Avoid prolonged or repeated contact with skin.
- o Do not take internally.

REFERENCES

1. NIOSH Registry of Toxic Effects of Chemical Substances, 1975
2. Industrial Hygiene and Toxicology, Volume II, Second Edition, F. A. Patty, 1963
3. Dangerous Properties of Industrial Materials, Fourth Edition, Sax, 1975
4. Industrial Toxicology, Hamilton and Hardy, 1974
5. Toxicity and Metabolisms of Industrial Solvent, Browning, 1965
6. Toxicology, The Basic Science of Poisons, Casarett and Doull, 1975