

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)

April, 1978

SECTION I

MANUFACTURER'S NAME PPG Industries, Inc.		EMERGENCY TELEPHONE NO. (412) 434-3131
ADDRESS (Number, Street, City, State, and ZIP Code) One Gateway Center, Pittsburgh, PA 15222		
CHEMICAL NAME AND SYNONYMS Hydrochloric Acid		TRADE NAME AND SYNONYMS Muriatic Acid
CHEMICAL FAMILY Acids	FORMULA HCl	

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				%	TLV (Units)
Hydrochloric Acid 20° Be' (31.5% HCl)				100	5 ppm (ceiling)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	185	SPECIFIC GRAVITY (H ₂ O=1) 60/60°F.	1.1600
VAPOR PRESSURE (mm Hg.) @ 86°F	20	PERCENT VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)	Unknown	EVAPORATION RATE (_____*1)	Unknown
SOLUBILITY IN WATER	Infinite		
APPEARANCE AND ODOR	Clear, water white to slightly yellow liquid; pungent and irritating odor.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	None	FLAMMABLE LIMITS	Lel	Uel
		None		
EXTINGUISHING MEDIA Not applicable				
SPECIAL FIRE FIGHTING PROCEDURES For fires involving muriatic acid, firefighter should wear pressure-demand, self-contained breathing apparatus to avoid possible exposure to HCl vapor.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Hydrochloric acid will attack most metals with the evolution of potentially explosive hydrogen.				

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	5 ppm (7 mg/M ³) ceiling (OSHA - 29 CFR 1910.1000)
EFFECTS OF OVEREXPOSURE	See attached sheet
EMERGENCY AND FIRST AID PROCEDURES	See attached sheet

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID Contact with metals
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)		Metals, strong alkali	
HAZARDOUS DECOMPOSITION PRODUCTS		Hydrogen	
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	See attached sheet

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)		See attached sheet	
VENTILATION	LOCAL EXHAUST Sufficient to maintain workplace concentration below TLV.	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES	Rubber or neoprene	EYE PROTECTION	Splash-proof goggles and face shield
OTHER PROTECTIVE EQUIPMENT Rubber apron, rubber boots, eye-wash fountain, safety shower, hardhat, long sleeve shirt.			

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 MURIATIC ACID (APRIL, 1978)

SECTION V -- HEALTH HAZARD DATA

Acute Toxicity¹

Inhalation: LC₅₀ (rat): 3124 ppm (one hour)
Oral: LD₅₀ (rabbit): 900 mg/kg

Effects of Overexposure^{2,3}

Acute: Muriatic acid is corrosive to eyes and skin. Eye or skin contact with liquid causes severe burns and can result in blindness even after a short exposure to small amounts.

Muriatic acid mists or HCl vapor are severely irritating to the respiratory tract and mucous membranes. Inhalation of sufficiently high concentrations may result in laryngeal spasms, laryngeal edema, or rapidly developing pulmonary edema. Mists may also cause bleeding of the nose and gums, ulceration of the nasal and oral mucosa and severe skin and eye irritation. Ingestion of muriatic acid causes severe burns of the digestive tract because of its corrosive nature and may be fatal.

Chronic: No known effects other than those outlined above.

Emergency and First Aid Procedures

Eye or Skin Contact: Immediately wash eyes with plenty of water (soap and water for skin) for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.

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.

Swallowing: Give a quart of water to drink. Do Not induce vomiting. Take immediately to a hospital.

SECTION VII -- SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Remove unprotected personnel from area of spill. Only personnel equipped

with proper skin and eye protection should be allowed in area. Neutralize spilled material by slowly and carefully covering the spill with soda ash (sodium carbonate). Then flush away the resultant mixture with copious amounts of water.

SECTION VII -- SPECIAL PROTECTION INFORMATION

Respiratory Protection

Use NIOSH/MESA-approved respiratory protection for mists and acid gases. Consult 29 CFR § 1910.134 for specific requirements.

SECTION IX -- SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

- When handling, wear safety goggles and face shield, rubber gloves, boots and apron, long-sleeve shirt and hard hat.
- Wear respiratory protection in any event where mist or vapor may be generated above OSHA permissible exposure limit.
- Avoid contact with strong alkalies or metals.

Other Precautions

- Do not get in eyes, on skin or on clothing.
- Avoid breathing mist or vapor.
- Use only with ventilation sufficient to limit employee exposure in work area at or below OSHA permissible exposure limit.
- Do not take internally.
- Wash thoroughly after handling.

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, N. I. Sax, 1975.