

MATERIAL SAFETY DATA SHEET (MSDS)Serial No. 25

Assigned by Code 04

Identity (As Used on Label) PGDN Spent Acid	Other Names PGDN Aged Spent Acid
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Section I. General

Manufacturer Naval Surface Warfare Center 101 Strauss Avenue Indian Head, MD 20640-5035	Emergency Telephone Number	(301)743-4438
	Telephone Number for Information	(301)743-4659
	Date Prepared	8/4/92

Section II. Summary of Hazards

Spent acid is an extreme corrosive hazard. It causes severe burns to eyes and skin. Ingestion of liquid may cause severe burns to the mucosal membranes of the mouth and esophagus. Repeated or prolonged contact with the vapors or mists may cause eye irritation with discomfort, tearing, or blurring of vision; or skin irritation with discomfort or rash. Inhalation may cause irritation of the upper respiratory system and erosion of dental surfaces. Higher inhalation exposures may lead to temporary lung irritation with cough, discomfort, difficulty with breathing, or shortness of breath.

Section III. Emergency and First Aid

Inhalation	Remove to fresh air immediately. If breathing has stopped, perform artificial respiration. Get medical attention.
Eye Contact	Wash eye immediately with large amounts of water, occasionally lifting upper and lower eyelids, for at least 30 minutes. Seek medical attention.
Skin Contact	Remove contaminated clothing immediately. Wash affected area with soap and water until no evidence of chemical remains. In case of chemical burns, cover area with sterile bandage. Seek medical attention.
Ingestion	Do not use gastric lavage or emesis. Dilute acid by drinking large quantities of water. If vomiting persists, administer fluids repeatedly. Ingested acids must be diluted 100 fold to render it harmless to tissues. Seek medical attention.
Emergency Medical Treatment Procedures	Treat symptomatically and supportively. Keep affected person warm and at rest. Treat any contact with body within seconds to reduce the corrosive action of the acid. Apply compresses of iced water until medical personnel arrive.

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Section IV. Health Hazards/Symptoms of Exposure

Summary of Acute Hazards

Symptoms include severe irritation to respiratory tract, eyes, skin, and mucous membranes of the mouth, throat, and esophagus.

ROUTE OF EXPOSURE	SIGNS AND SYMPTOMS	PRIMARY ROUTE OF ENTRY
Inhalation	Inhalation of vapors may cause severe respiratory irritation with coughing, choking, and possibly yellowish burns of the mucous membranes. Other initial symptoms include dizziness, headache, nausea, and weakness. Pulmonary Edema may be immediate in the most severe exposures.	<input type="checkbox"/> Yes
Eye Contact	Direct contact with acid may cause pain and lacrimation, photophobia, and possibly severe burns. Concentrated acid may impart a yellow color to the eye upon contact. Contact with the vapors or mists may cause eye irritation with discomfort, tearing, or blurring of vision.	<input type="checkbox"/> Yes
Skin Contact	Direct contact with liquid or vapor may cause severe pain, burns or possibly yellowish stains. Burns may be deep with sharp edges and heal slowly with scar tissue formation. Dilute solutions may produce mild irritation and harden the epidermis without destroying it.	<input type="checkbox"/> Yes
Ingestion	Ingestion may cause corrosion of the mucous membranes of the mouth, throat, and esophagus. There may be immediate pain and difficulty or inability to swallow or speak. Marked thirst, epigastric pain, nausea, vomiting, and diarrhea may occur.	<input type="checkbox"/> No
Chronic Hazards (long term)	Hazards include erosion of the teeth, ulcerative changes of the mouth and mucous membranes, bronchial pneumonia, dermatitis, conjunctivitis, and reproduction problems. No ingredient is listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.	

Section V. Protective Equipment and Control Measures

Respiratory	Supplied air respirator is required if exposed to levels above OSHA limits.
Eye	Chemical splash goggles and full length face shield
Skin	Neoprene or PVC gauntlet gloves, acid suit
Engineering Controls	Good general ventilation should be provided to keep vapor concentrations below the exposure limit.
Other Hygienic and Work Practices	Wear flame-resistant coveralls and cap, conductive-soled safety shoes. Have an eyewash and safety shower nearby. There should be no smoking or eating in the workplace.

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Section VI. Fire and Explosion

Flash Point(Method)	Autoignition Temp (Method)	Flammable Limits (% vol in air)	
Will not burn	Not Applicable	Lower N/A	Upper N/A

Fire and Explosion Hazards

Strong oxidizer - contact with other material may cause fire or liberate toxic or flammable gases (NO_x or Hydrogen). Reacts violently with water, spattering acid.

Extinguishing Media

Small fires: dry chemical or carbon dioxide
Large fires: Water spray, fog, or foam

Special Fire Fighting Procedures

Evacuate area. Stay upwind. DO NOT get water inside any container. Use water to cool tanks or to rapidly flood fire. Wear full protective clothing, including SCBA and lifeline when entering enclosed area. Shut off source of leak or ignition if possible without risk.

Section VII. Spill and Disposal

Large Spill

Evacuate area, stay far upwind. Confine spill and containerize as much of the spilled liquid as possible. Neutralize washings and spill area with soda ash or lime. Air Release: Apply water spray to knock down and reduce vapors. Knock-down water is corrosive and toxic and should be diked for containment for later disposal.

Small Spill

Keep combustibles (wood, paper, oil, etc) away from spilled material. Do not touch spilled material. Stop leak if you can do it without risk. Use water spray to reduce vapors. Do not get water inside containers. Neutralize the liquid using soda ash or lime.

Waste Disposal Methods

Containerized liquid must be disposed of as a hazardous waste per 40 CFR 262.

Section VIII. Handling and Storage

General Handling Procedure

Avoid contact with combustible materials (wood, paper, oil, etc). Reacts violently with water and fuels. Flammable, poisonous gases may accumulate in tanks and tank trucks. Runoff to sewer may create fire or explosion hazard.

Storage Requirements

Do not store near metallic powders, carbides, hydrogen sulfide, turpentine, organic acids, and other combustible materials. Provide good ventilation and avoid direct sunlight.

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Section IX. Stability and Reactivity

Stable ?	Yes	No	Conditions to Avoid Avoid contact with heat and water
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Incompatibility (Materials to Avoid) Reacts violently with water. Reacts exothermically with alkaline and oxidizable materials, metal powders, organics, cyanides, sulfides, and concentrated ammonia or amines. Hazardous concentrations of sulfur trioxide gas may accumulate in the headspace of containers.

Hazardous Decomposition Byproducts May release toxic fumes, such as nitric acid, oxides of nitrogen or sulfur, or flammable hydrogen gas.

Hazardous Polymerization ?	Yes	No	Conditions to Avoid Not Applicable
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Impact Sensitivity (mm)	Unknown	Other
Friction Sensitivity (psig)	Unknown	Other
ESD Sensitivity (joules)	Unknown	Other

Section X. Hazardous Ingredients/Identity Information

Hazardous Components	OSHA PEL (mg/m3)	ACGIH TLV (mg/m3)	OTHER Limits
Sulfuric Acid (H2SO4) (67 wt%)	1	1	3 mg/m3 ACGIH STEL
Nitric Acid (HNO3) (15 wt%)	5	5.2	10 mg/m3 OSHA @ ACGIH STEL
Oxides (HNOSO4) (2 wt%)	Unknown	Unknown	
Nitric Oxide (NO)	30	31	
Nitrogen Dioxide (NO2)		5.6	1.8 mg/m3 OSHA STEL

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Section XI. Physical and Chemical Data

Boiling Point (indicate F or C)	82 to 118 C	Specific Gravity (water = 1)	1.8 to 2.0
Vapor Pressure (mm Hg)	1 to 35 @ 30 C	Melting Point (indicate C or F)	-25 to 25 C
Vapor Density (Air=1)	2.8	Evaporation Rate (Butyl Acetate = 1)	Greater than 1
Solubility in Water 100%			
Appearance and Odor Milky white to light green with an acrid odor			

Section XII. Other Information

Health (Blue)		2	Hazardous Material Warning Label (for Naval Surface Warfare Center, Indian Head use only) 0 = No Significant Hazard 1 = Slight Hazard 2 = Moderate Hazard 3 = Severe Hazard 1.3 = Mass Fire Explosive 1.1 = Mass Detonating Explosive ND = Hazard has Not Yet Been Determined
Contact (White)		3	
Fire (Red)		0	
Reactivity (Yellow)		2	

Shipping Name PGDN Spent Acid

DOT Hazard Class Corrosive Material **DOT Shipping Label** Corrosive

TSCA Status All chemicals in PGDN Spent Acid are listed in the TSCA Chemical Inventory.

CERCLA/SARA Report spills per 40 CFR 302.6.

R C R A PGDN Spent Acid is a corrosive hazardous waste and has an EPA waste number of D002

State Regulatory Information PGDN Spent Acid is a hazardous waste in the state of Maryland with a waste number of D002 for corrosivity.

IDENTITY: PGDN SPENT ACID
SYNONYMS: N/A

DESCRIPTION

Milky white to light green with an acrid odor.

HAZARDS

Fire & Explosion Hazards: Keep away from heat, sparks, open flame and other sources of ignition.

Short Term (Acute) Health Hazards:

Eyes: Direct contact may cause pain and lacrimation, photophobia, and possibly severe burns. Concentrated acid may impart a yellow color to the eye on contact. Contact with vapors or mists may cause irritation with discomfort, tearing, or blurring of vision.

Skin: Direct contact of liquid or vapor may cause severe pain, burns, or possibly yellowish stains. Burns may be deep with sharp edges and heal slowly with scar tissue formation. Dilute solutions may produce mild irritation and harden the epidermis without destroying it.

Inhalation: May cause severe respiratory irritation with coughing, choking and possibly yellowish burns of the mucous membranes. Other initial symptoms include dizziness, headache, nausea and weakness. Pulmonary edema may be immediate in the most severe exposures.

Ingestion: May cause corrosion of the mucous membranes of the mouth, throat, and esophagus. There may be immediate pain and difficulty or inability to swallow or speak. Marked thirst, epigastric pain, nausea, vomiting, and diarrhea may occur.

Long Term (Chronic) Health Hazards: May cause erosion of the teeth, ulcerative changes of the mouth and mucous membranes, bronchia pneumonia, dermatitis, conjunctivitis and reproduction problems.

PRECAUTIONARY MEASURES

Reacts violently with water. Reacts exothermically with alkaline and oxidizable materials, metal powders, organics, cyanides, sulfides and concentrated ammonia or amines. For fighting small fires use carbon dioxide or dry chemical. For large fires use water spray, fog or foam. Refer to SOP for PPE requirements.

FIRST AID

Eyes: Flush with large amounts of water for 15 minutes. Seek medical attention immediately.

Skin: Remove contaminated clothing. Wash affected area with plenty of soap and water. Do not reuse clothing until thoroughly cleaned. Seek medical attention.

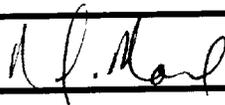
Inhalation: Remove to fresh air. Seek medical attention immediately.

Ingestion: Dilute acid by drinking large quantities of water. If vomiting persists, administer fluids repeatedly. Seek medical attention immediately.

NOTE: See MSDS 25 for additional information.

HMA-25

APPROVED: N. J. MOORE



Date: March 26, 1998
