



# MATERIAL SAFETY DATA SHEET

Penetone® Corporation, 700 Gotham Parkway, Carlstadt, NJ 07072  
CAGE 56883

**PENAIR® HD-4**  
MIL-PRF-87937D TYPE IV

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Date Prepared: January 25, 2007  
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## SECTION 1 PRODUCT IDENTIFICATION

PRODUCT NAME: PENAIR HD-4  
GENERAL USE: Aircraft Exterior Cleaner  
PRODUCT DESCRIPTION: Liquid alkaline cleaner  
GENERIC INGREDIENTS: Water, surfactants, water conditioning agent, inhibitors

**EMERGENCY TELEPHONE NUMBERS: PENETONE 201-567-3000**  
**CHEMTREC 800-424-9300**

## SECTION 2 COMPOSITION AND INFORMATION ON INGREDIENTS

This product is hazardous as defined in 29 CFR 1910.1200.

### OSHA HAZARDOUS INGREDIENTS

	%	CAS#	EXPOSURE LIMITS 8 hrs. TWA (ppm)		Supplier
			OSHA PEL	ACGIH TLV	
Dipropylene glycol methyl ether	10	34590-94-8	100	100	----

## SECTION 3 HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW:

**Clear water white to amber liquid with a mild odor.**  
**Can be irritating to skin and eyes.**

### POTENTIAL HEALTH EFFECTS:

#### EYE CONTACT:

Irritating to the eyes on contact only.

#### SKIN CONTACT:

Frequent or prolonged contact may irritate or dry the skin and cause dermatitis. Skin contact may aggravate an existing dermatitis condition.

#### INHALATION:

Inhalation of spray mist may cause irritation to the respiratory tract, lightheadedness and headaches.

#### INGESTION:

Ingestion may cause irritation to the digestive tract and diarrhea.

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### SECTION 4 FIRST AID MEASURES

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**EYE CONTACT:**

Flush eyes with large amounts of water. See physician immediately.

**SKIN CONTACT:**

Flush skin with large amounts of water. Remove contaminated clothing and launder before reuse. If skin irritation develops or persists, consult physician.

**INHALATION:**

Remove person to fresh air. Administer oxygen or artificial respiration as needed. Call a physician immediately.

**INGESTION:**

If swallowed, give plenty of milk or water. Call a physician immediately.

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### SECTION 5 FIRE FIGHTING MEASURES

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**FLASH POINT:** None to boiling point (TCC, COC)

**FLAMMABLE LIMITS:** not applicable

**AUTOIGNITION TEMPERATURE:** not determined

**GENERAL HAZARD:**

This is a water based product and presents no unusual hazards in a fire.

**FIRE FIGHTING:**

Cool exposed containers with water spray.

**HAZARDOUS COMBUSTION PRODUCTS:**

Smoke, fumes, and oxides of carbon and nitrogen.

**HAZARD RATING SYSTEMS:**

	HMIS	NFPA	KEY
HEALTH	1	1	4 = Severe
FLAMMABILITY	0	0	3 = Serious
REACTIVITY	0	0	2 = Moderate
			1 = Slight
			0 = Minimal

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### SECTION 6 ACCIDENTAL RELEASE MEASURES

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**LAND SPILL:**

For small spills, use absorbent material such as towels or absorbent powders. Put all material into proper waste disposal container with lid tightly covered. For larger spills, dike spill, recover free liquid, and use absorbent material to dry area. Rinse area with water. Put all material into appropriate waste containers.

**WATER SPILL:**

Product is water based and water dilutable. Surfactants used in this product are biodegradable. Localized high concentration of product may cause fish kills, but no persistent or long term effects will result. Check with local environmental regulatory agencies for reporting requirements.

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## SECTION 7 HANDLING & STORAGE

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**STORAGE TEMPERATURE, °F:** ambient. Do not store at temperatures consistently above 120° F, or below 32° F, to ensure product integrity. If product freezes, thaw and mix before using.

**GENERAL:** Do not store near strong acids or oxidizers.

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## SECTION 8 EXPOSURE CONTROLS - PERSONAL PROTECTION

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### PERSONAL PROTECTION:

Safety glasses are recommended for all workplace conditions. Solvent resistant gloves should be used. Depending on how the product is used, other protective gear, including splash proof goggles or face shield, rubber boots, apron, gauntlets, or rain gear should be worn.

### VENTILATION:

None needed under normal use conditions. If the product is being sprayed, a dust mask or particle respirator is recommended.

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## SECTION 9 PHYSICAL & CHEMICAL PROPERTIES

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### BOILING POINT, °F:

About 212 (100°C)

### EVAPORATION RATE, Acetone = 1:

equal to water

### SOLUBILITY IN WATER:

emulsifies

### SPECIFIC GRAVITY at 75°F:

1.01

### pH:

8.5

### VISCOSITY, cs at 20°C:

<20

### VAPOR PRESSURE, mm Hg at 20°C:

equal to water

### VAPOR DENSITY (Air = 1):

equal to water

### WT% ORGANIC VOLATILES :

10

### VOC CONTENT, lbs/gal:

1.0

### WT% SOLIDS:

19.3

### ODOR AND APPEARANCE:

Clear water white to amber liquid with a mild odor

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## SECTION 10 STABILITY & REACTIVITY

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### GENERAL:

This product is stable.

### INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong acids and strong oxidizing agents.

### DECOMPOSITION PRODUCTS:

Smoke, fumes, and oxides of carbon and nitrogen.

### HAZARDOUS POLYMERIZATION:

Hazardous polymerization will not occur.

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## SECTION 11 TOXICOLOGICAL INFORMATION

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**ORAL:** Not determined.

**DERMAL:** Not determined

**INHALATION:** Inhalation of spray mist may cause irritation to the respiratory tract, lightheadedness and headaches.

**EYE IRRITATION:** May cause irritation to eyes on prolonged contact. High vapor concentrations may be irritating.

**SKIN IRRITATION:** Frequent or prolonged contact may irritate or dry the skin, or cause dermatitis. Skin contact may aggravate an existing dermatitis condition.

**CARCINOGENICITY:** No material in this product is listed by IARC, NTP, or OSHA as a carcinogen.

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## SECTION 12 ECOLOGICAL INFORMATION

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Penair HD-4 biodegrades 90.0% within 28 days when tested in accordance with 40CFR, Part 796, Subpart D. This product contains surfactants which will cause it to disperse in water. If spilled in water, localized high concentrations of this product may cause fish kills, but no persistent or long term effects will result. Check with local environmental regulatory agencies for reporting requirements.

LC<sub>50 estimated</sub>: Fathead Minnows (*Pimephales promelas*) - 10 - 50 ppm; Cladoceran (*Ceriodaphnia dubia*) - 10- 50 ppm

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## SECTION 13 DISPOSAL CONSIDERATIONS

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Penair HD-4 is a nonhazardous waste under RCRA definitions. Dispose of in accordance with all applicable federal, state, and local regulations.

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## SECTION 14 TRANSPORT INFORMATION

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**SHIPPING DESCRIPTION:**

**UNITED STATES:** NONHAZARDOUS (nonregulated) MATERIAL

**CANADA:** NONHAZARDOUS (nonregulated) MATERIAL

**INTERNATIONAL:** NONHAZARDOUS (nonregulated) MATERIAL

**LABELS REQUIRED:**

**UNITED STATES:** Not required.

**CANADA:** Not required.

**INTERNATIONAL:** Not required.

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## SECTION 15 REGULATORY INFORMATION

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**TSCA:** The ingredients in this product are listed on the TSCA inventory.

**CERCLA:**

This product contains no reportable CERCLA materials. Contact local authorities to determine if there may be other local reporting requirements.

**RCRA HAZARD CLASS:**

Nonhazardous waste

**SARA TITLE III:**

311/312 HAZARD CATEGORIES:

Acute health

313 REPORTABLE INGREDIENTS:

none

**NEW JERSEY RIGHT-TO-KNOW INFORMATION:**

This product contains Water (CAS# 7732-18-5), Alcohol ethoxylate (CAS# 68439-46-3), Dipropylene glycol methyl ether (CAS#34590-94-8) and coconut diethanolamide (CAS# 68603-42-9).

**CALIFORNIA PROPOSITION 65 INFORMATION:**

This product does not contain any chemicals recognized by the state of California to cause cancer and/or birth defects or reproductive harm.

**SCAQMD INFORMATION:**

Is there a photochemically reactive material present? No  
What is the % by volume of photochemically reactive material? 0  
What is the VOC content? 100 g/L  
What is the vapor pressure of VOC's? < 0.1 mm Hg @ 20°C

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**SECTION 16 OTHER INFORMATION**

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**REVISION SUMMARY:**

updated information in sections 7 and 9

**SUPERSEDES ISSUE DATE:**

October 9, 2006

**LABEL TEXT:**

A hard copy of the label is attached as part of this document.

FOR ADDITIONAL PRODUCT INFORMATION, CONTACT YOUR SALES ENGINEER  
FOR ADDITIONAL HEALTH/SAFETY INFORMATION, CALL 201-567-3000

THE INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM SOURCES CONSIDERED TO BE DEPENDABLE AND ACCURATE TO THE BEST OF PENETONE'S KNOWLEDGE. THE INFORMATION RELATES TO THIS SPECIFIC MATERIAL. IT MAY NOT BE VALID FOR THIS MATERIAL IF USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY ONESELF AS TO THE SUITABILITY AND COMPLETENESS OF THIS INFORMATION FOR HIS OWN PARTICULAR USE.

**PENAIR® HD-4**

Cleaning Compound for Aerospace Equipment,  
Qualified under MIL-PRF-87937 Type IV

**CAUTION:****VAPOR HARMFUL. IRRITATING TO SKIN AND EYES. HARMFUL IF SWALLOWED. KEEP OUT OF REACH OF CHILDREN.**

Avoid breathing of vapors and spray mist. Adequate ventilation, including open doors and windows, exhaust fans and air movements must be provided. Avoid contact with skin, eyes, and clothing. When using, wear safety glasses or splash-proof goggles and solvent resistant gloves. Other equipment including face shield and apron are recommended if the product is sprayed. Use coarse spray only. DO NOT FOG. If spraying, wear a particle mask. Launder contaminated clothing before reuse. Overexposure can cause headaches, drowsiness, or nausea.

**FIRST AID:** In case of contact with skin and eyes, immediately flush affected areas with large amounts of water for 15 minutes. For eyes, consult physician immediately. For skin, consult physician if irritation develops or persists. In case of excessive inhalation, remove to fresh air. Give artificial respiration if needed. Call a physician immediately. If ingested, drink plenty of milk and/or water. DO NOT INDUCE VOMITING. Call a physician immediately.

**FIRE PROCEDURE:** Extinguish with foam, dry chemical, or CO<sub>2</sub>.

**STORAGE AND HANDLING:** Keep container closed when not in use. Store at temperatures below 120°F. DO NOT FREEZE. If **Penair HD-4** should freeze, thaw and mix before using. Store only in original container. Do not cut, weld or reuse empty container. Dispose of container and contents only in accordance with local, state, and Federal EPA regulations.

Use product within two years of purchase date. To reorder, call 800-631-1652 or 800-421-6211.

**CALIFORNIA PROPOSITION 65 INFORMATION:** This product does not contain chemicals recognized by the state of California to cause cancer and/or birth defects or reproductive harm.

**DIRECTIONS FOR USE:** **Penair HD-4** is a clear amber, water soluble, product used for cleaning aerospace equipment. Apply it by wiping it on, dipping in a tank or by using a nonatomizing spray.

**CLEANING COMPOUND, AEROSPACE EQUIPMENT, TYPE IV:**

**DIP TANK METHOD:** Dilute **Penair HD-4** with a minimum of 2 parts water unless otherwise specified in Technical Order. Normal dilution ratios are 1:4 for heavy soils, 1:10 for light soils.

**EXTERIOR CLEANING METHODS:****AIRCRAFT:**

Dilute **Penair HD-4** 1:10 to 1:20 with water depending on the amount of soil to be removed. For spot cleaning, dilute the **Penair HD-4** with 4 to 10 parts water depending on the amount of soil to be removed. After cleaning, rinse off with water. Ensure engines are properly blocked and sealed to preclude contact with internal jet engine components. Not recommended for cleaning canopies.

**AEROSPACE GROUND EQUIPMENT (AGE):**

Dilute **Penair HD-4** 1:10 to 1:20 with water depending on the amount of soil to be removed. For spot cleaning, dilute **Penair HD-4** with 4 to 10 parts water depending on the amount of soil to be removed. After cleaning, rinse off with water.

**MOTOR VEHICLE ENGINES:**

Dilute **Penair HD-4** with 3 to 10 parts water depending on the amount of soil to be removed. After cleaning, rinse off with water. Not recommended as a spot cleaner for engines.

**Important:** **Penair HD-4** is safe for use on all metals. It is safe for use on acrylic and polycarbonate plastics when used at a 1:10 or higher dilution. Pretest before use to ensure compatibility.

**NEW JERSEY RIGHT-TO-KNOW INFORMATION:** This product contains Water (CAS# 7732-18-5), Alcohol ethoxylate (CAS# 68439-46-3), Dipropylene glycol methyl ether (CAS#34590-94-8) and coconut diethanolamide (CAS# 68603-42-9).

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Penetone® Corporation - Registered by UL to ISO 9001:2000  
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