



SAFETY DATA SHEET

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

PENAIR® HD 1
MIL-PRF-87937D Type 1

Page: 1 of 8
Date Prepared: January 25, 2015
MSDS No.: 1864

SECTION 1: IDENTIFICATION

Product name: PENAIR HD-1

Recommended use: Aircraft exterior cleaning

Physical Description: Clear amber liquid with citrus odor

Generic Ingredients: Water, d'limonene, surfactants, glycol ether

Manufacturer:

Penetone Corporation
700 Gotham Parkway
Carlstadt, NJ 07072
800-631-1652 or 201-567-3000

Business Contact:

Customer Service
800-631-1652 x2602 or 2272
Product Safety
800-631-1652 x2211 or 2257

Emergency Phone Numbers: PENETONE 201-567-3000 CHEMTREC 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

<p>Health: Skin irritation: 2 Eye irritation: 2A Skin sensitization: 1</p>	<p>Specific target organ toxicity - single exposure: 3 Aspiration hazard: 1 Physical: Flammable liquid: 3</p>
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DANGER!

Flammable Liquid and Vapor.
May Be Fatal If Swallowed and Enters Airways.
Causes Skin and Serious Eye Irritation.
May Cause an Allergic Skin Reaction.
May Cause Drowsiness or Dizziness.



Precautionary Statements:	
<p><u>Prevention:</u> Avoid breathing fumes, vapors or mists if inhalable mists occur during use. Use only outdoors or in a well-ventilated area. Wear protective gloves, eye protection, and face protection. Wash hands and exposed skin thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Keep container tightly closed. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting, and mixing equipment. Use only non-sparking tools. Take precautionary measure against static discharge.</p> <p><u>Response:</u> <i>In case of fire:</i> Use dry chemical, carbon dioxide, water spray, water fog, or foam. Do not use solid water stream as this may spread the fire. <i>If in eyes:</i> Rinse cautiously with water for several minutes. Remove contact lenses, if present and</p>	<p>easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. <i>If on skin (or hair):</i> Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. <i>If inhaled:</i> Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, emergency room or 911 if you feel unwell. <i>If swallowed:</i> Immediately call a poison center, doctor, emergency room, or 911. Do NOT induce vomiting.</p> <p><u>Storage:</u> Store locked up. Store in a well-ventilated place. Keep cool. Keep container tightly closed.</p> <p><u>Disposal:</u> Dispose of contents/container in accordance with local, regional, and national regulations (see Sections 13 and 15 of SDS for disposal and reporting requirements).</p>



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SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Concentration Wt% (1)
Water	7732-18-5	25-40
d-limonene	5989-27-5	20-30
Diethylene glycol butyl ether	112-34-5	10-20
Potassium fatty acid soap	61790-44-1	10-20
Dipropylene glycol	25265-71-8	1-10
Ethoxylated nonylphenol	127087-87-0	1-10
Sodium bicarbonate	144-55-8	1-10
Severely hydrotreated heavy naphthenic distillate	64742-52-5	1-10

(1) Exact percentages being withheld under trade secret provision of OSHA HCS 1910.1200(i)

SECTION 4: FIRST-AID MEASURES

General Description of Symptoms & First-Aid Measures

Most likely work-place exposure routes will be *skin contact* or *inhalation*.

For *skin contact*, typically no immediate effects will be observed. Slight reddening or minor irritation could develop some time after exposure if product is not quickly washed off. For sensitive individuals, a rash may appear.

Inhalation exposure may produce varied effects, particularly if exposure occurs above the recommended workplace exposure limits (see SECTION 8). Typical symptoms would include headaches, dizziness, and drowsiness. In extreme cases, unconsciousness and other central nervous effects may occur.

Eyes

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists or develops: Get medical advice or attention. Penetone recommends that after any eye exposure a physician be seen immediately.

Ingestion

If swallowed: Immediately call a poison center, doctor, physician or other competent medical authority. Rinse mouth. Product presents an aspiration hazard. DO NOT INDUCE VOMITING.

Inhalation

If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center, doctor, physician or other competent medical authority if you feel unwell.

Skin

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. A mild soap may be used to wash skin. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice or attention.

Special Treatment / Other

None

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties

Classification: 3

Flash Point: 125°F TCC, 155°F COC

Autoignition Temperature: not determined

Lower Flammable Limit: not determined **Upper Flammable Limit:** not determined



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Specific Hazards

Flammable liquid. Can form flammable mixtures at or above the flash point. Although the product is flammable, it is water based and water dilutable and will self extinguish with addition of water.

Extinguishing Media

Suitable: SMALL FIRE: Use dry chemical, carbon dioxide (CO₂), water spray or regular foam. LARGE FIRE: water spray, water fog, or foam.

Unsuitable: Do not use solid water stream as this may spread fire.

Protection & Precautions for Firefighters

Protective Equipment & Clothing: Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.

Fire Fighting Guidance: Cool containers with flooding quantities of water until well after fire is out. Move containers from fire area if you can do it safely. Dike fire control water for later disposal; do not scatter material. Containers can expand and explode under fire conditions due to vapor buildup. Always stay away from containers engulfed in fire.

Hazardous Combustion Products: Smoke, fumes, and oxides of carbon.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Land Spill

Eliminate sources of ignition. Do not touch or walk through spilled material. Stop leak if you can do it safely. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spill, soak up with absorbent material and place in properly labeled containers for disposal.

Water Spill

Product forms emulsion with water which may make cleanup difficult. Avoid agitation to minimize emulsion formation. Remove product from water surface by skimming or with suitable absorbents. Put into properly labeled containers for reclamation or disposal. If allowed by local environmental regulatory agencies, you may use a suitable dispersant. Check with local environmental regulatory agencies for reporting requirements.

See SECTION 8 for EXPOSURE CONTROLS and PERSONAL PROTECTION.

SECTION 7: HANDLING & STORAGE

Handling

Do not handle near heat, sparks, or flame. Avoid contact with oxidizing agents. Use only with adequate ventilation/personal protection (SEE section 8). Avoid contact with eyes, skin and clothing. After handling, always wash hands thoroughly with soap and water. Avoid personal contact with any residue. Dispose of empty containers with care. Empty containers can contain flammable residue and explosive vapors. **Do not cut, weld, or reuse empty container.**

Storage

Store in a well-ventilated place. Keep container tightly closed. Keep cool. Store locked up. Do not store near heat, sparks, open flame, or other ignition sources. Do not store near strong oxidizing agents. Do not store in direct sunlight. Avoid storing above 120°F (49°C).



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SECTION 8: EXPOSURE CONTROLS and PERSONAL PROTECTION

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal Protection

Inhalation A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use of an organic vapor mask or respirator is recommended.

Skin Wear chemical resistant gloves such as: rubber, nitrile, neoprene, or latex when skin contact is possible. Protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn depending on how the product is used. PPE should be cleaned thoroughly after each use.

Eyes Penetone recommends always wearing safety glasses as a minimum in any workplace. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

Additional Remarks

Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

Occupational Exposure Limits

<u>Component Name</u>	<u>Source</u>	<u>Value</u>	<u>Type</u>	<u>Notation</u>
d-Limonene (1)	ACGIH	20 ppm	TWA	dsen; A4
	NIOSH	100 ppm	TWA	
	OSHA Z1	100 ppm	TWA	

(1) No OEL has been established for d-limonene. Value given is for turpentine which has same molecular weight and similar structure.

SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

Appearance: clear amber white liquid

Odor: mild citrus

Odor Threshold: not determined

pH: about 9

Melting Point / Freezing: about 30°F

Boiling Point / Boiling Point Range: about 212°F

Flash Point: 125°F TCC, 155°F COC

Evaporation Rate: equal to water

Flammability: not applicable

Lower Flammable Limit: not determined

Upper Flammable Limit: not determined

Explosive Properties: not applicable

Vapor Pressure: equal to water

Relative Vapor Density: equal to water

Relative Density: 0.97

Solubility (Water): forms emulsion (separate in one to 12 hours)

Partition Coefficient (K_{ow}): not determined



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Auto-ignition temperature: not determined
Decomposition temperature: not determined
Viscosity: 5-25 centipoise at room temperature

SECTION 10: STABILITY & REACTIVITY

Reactivity

Product is stable and only reactive under extreme conditions (very high heat/pressure) or in the presence of specific incompatible materials (see below).

Chemical Stability

Product is stable.

Hazardous Reactions

Hazardous polymerization will not occur.

Conditions to Avoid

Flammable liquid. Do not store near sources of heat, sparks, open flame, or other ignition sources.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

Carbon monoxide and dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

Product Summary

Product is irritating to the skin and eyes and may cause a skin rash in sensitive people. Vapor/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, and may cause headaches, dizziness, drowsiness, unconsciousness and other central nervous system effects.

Acute Toxicity:

Oral: Rats, LD50 >4,000 mg/kg (estimated using additivity formula)

For a very similar product:

Dermal: Rabbits, LD50 > 2.0 g/kg

Inhalation: Rats, 1hr, 199 mg/l, non-toxic per CFR 16.1500.3. No mortalities at 14 days. No macroscopic changes of internal organs.

Skin Corrosion/Irritation

Based upon component data, product as a whole may cause moderate skin irritation.

Serious Eye Damage/Irritation

Based upon component data, product as a whole may cause moderate to serious eye irritation.

Sensitization - Respiratory or Skin

d-Limonene may cause skin sensitization.

Germ Cell Mutagenicity

For a similar product:

Ames, salmonella typhimurium, 50 ppm, with and without metabolic activation: both negative. Product not considered mutagenic.

For the components: Various in vivo and in vivo screening tests were all negative.



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Carcinogenicity

Various studies have shown that d-limonene when fed at very high levels to laboratory animals have resulted in effects on the kidneys, liver, ureter, and bladder. d-Limonene is listed by IARC as Group 3: not classifiable as to its carcinogenicity to humans and is listed by ACGIH as Group 4: not classifiable as a human carcinogen. d-Limonene is listed as an equivocal tumorigenic agent by RTECS criteria.

Reproductive Toxicity

The nonionic surfactant used in this product has produced effects in the fetus only at levels that were toxic to the parent animals.

Specific Target Organ Effects - Single Exposure

No data available.

Specific Target Organ Effects - Repeated or Prolonged Exposure

For a similar product: Rats, one hour, 200mg/l, 2 weeks, found to be non-toxic.

d-Limonene: Repeated dose toxicity: mouse (male/female): NOEL - 1,650 mg/kg; LOEL - 3,300 mg/kg

The nonionic surfactant used in this product and diethylene glycol butyl ether have had effects on the kidney, liver, and blood of lab animals at high feeding levels over extended periods of time.

Aspiration Hazard

Based upon available data and comparison to similar materials, if swallowed, may pose a lung aspiration hazard during vomiting. Lung aspiration may result in chemical pneumonitis, pulmonary edema, and damage to lung tissue or death.

SECTION 12: ECOLOGICAL INFORMATION

Product Summary

Based upon product data and data for a similar product, product can be considered harmful to aquatic organisms with LC50s generally in the range of 10-50 mg/l. (Acute aquatic toxicity category 3 by European Union classification).

Ecotoxicity

For this product:

Fathead minnow: 96 hr LC50 10-50 ppm (various range finding studies)

Water flea: 48 hr LC50 8 ppm and 10 ppm

For a similar product:

Rainbow trout: 96 hr LC50 found to be 15, 18, and 34 ppm in separate tests

Fathead Minnow: 24 hr LC50 10 ppm

Opossum Shrimp: 96 hr LC50 5 ppm

Brine Shrimp: 48 hr LC50 7-32 ppm; 96 hr LCL 35 ppm, 96 hr UCL 29 ppm

Killifish: 24 hr LC50 35 ppm, 48 hr LC50 19 ppm, 72 hr LC50 18 ppm, 96 hr LC50 18 ppm

Persistence and Degradability

In four separate 28 days studies (all by EPA 796.3100), degradability was determined to be: (1) 82.0% by DOC, 41.0% by CO₂ evolution; (2) 82.8% DOC, 32.1% CO₂; (3) 83.4% by DOC, 52.8% by CO₂ evolution; (4) 81.2% by DOC, 34.2% by CO₂ evolution. Minimum inhibitory concentrations were reported to be less than 3.125% in all studies. Product as a whole should be considered readily biodegradable.

Bioaccumulative Potential

Product not expected to bioaccumulate due to its degradability.

Mobility in soil

No data available for the product.



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Other Adverse Effects
None known

SECTION 13: DISPOSAL CONSIDERATIONS

Product is a D001 Ignitable Hazardous Waste under RCRA definitions. Dispose of contents/container in accordance with all applicable federal, state, and local regulations.

Note: Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Appropriate hazardous waste designation is the responsibility of the user.

SECTION 14: TRANSPORT INFORMATION

ID No.: UN1993
Proper Shipping Name: FLAMMABLE LIQUID, N.O.S., (contains d-limonene)
Hazard Class: 3
Packing Group: III
Label: FLAMMABLE
Marine Pollutant: No
RQ: No
Special Precautions: None

SECTION 15: REGULATORY INFORMATION

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

RCRA HAZARD CLASS
D001 - Ignitable hazardous waste

SARA 311/312 REPORTABLE HAZARD CATEGORIES: Immediate (Acute) Health Fire

REPORTING REQUIREMENTS (all quantities in pounds)

Component	CAS / 313 Code	Section 302 (EHS) TPQ	Section 304 EHS RQ	CERCLA RQ	Section 313	CAA 112(r) TQ	CWA / OPA
Diethylene glycol butyl ether	N230			(1)	313		
(1 CERCLA hazardous substance with no assigned RQ)							

NEW JERSEY RIGHT-TO-KNOW INFORMATION

This product contains water (CAS# 7732-18-5), d-limonene (CAS# 5989-27-5), potassium fatty acid soap (CAS# 61790-44-1), diethylene glycol butyl ether (CAS# 112-34-5), and ethoxylated nonylphenol (CAS# 127087-87-0).

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? Yes
What is the % by volume of photochemically reactive material? About 30



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What is the VOC content? 490 g/l
What is the vapor pressure of VOC's? 0.18 mm Hg @ 20°C

SECTION 16: OTHER INFORMATION

REVISION SUMMARY
New GHS format

SUPERSEDES ISSUE DATE
July 5, 2007

HAZARD RATING SYSTEMS:

	<u>HMIS</u>	<u>NFPA</u>
HEALTH	2	2
FLAMMABILITY	2	2
REACTIVITY	0	0
	B	

KEY
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

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

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