

2/2/12



ARMAKLEEN™ 4 in 1 Cleaner – Cleaning Solution
MATERIAL SAFETY DATA SHEET FOR USA AND CANADA

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ARMAKLEEN™ 4 in 1 Cleaner – Cleaning Solution

SYNONYM(S): Not available

PRODUCT PART NUMBERS: Not available

PRODUCT USE: Aqueous, alkaline, concentrated cleaner that is to be diluted with water and used for cleaning aluminum, magnesium, titanium, ferrous and non-ferrous alloys as well as plastic, glass and composite materials. Concentrated cleaner must be diluted prior to use to meet local and state VOC emission regulations.

These numbers are for emergency use only. If you desire non-emergency product information, please call a telephone number listed below.

24-HOUR EMERGENCY TELEPHONES

MEDICAL:

TRANSPORTATION (SPILL):

1-800-468-1760

MANUFACTURER:

The ArmaKleen Company
469 North Harrison Street
Princeton, NJ 08543
USA

(609) 683-5900

TECHNICAL INFORMATION: 1-800-332-5424

SAFETY-KLEEN MSDS FORM NUMBER: 820070

THE ARMAKLEEN COMPANY MSDS NUMBER:

SUPPLIER:

Safety-Kleen Systems, Inc.
5360 Legacy Drive, Building 2, Suite 100
Plano, TX 75024
USA

(800) 669-5740

ISSUE: February 17, 2012

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PREPARED BY: ArmaKleen MSDS Coordinator

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

WT%	NAME	SYNONYM	CAS NO.	OSHA PEL		ACGIH TLV®		LD ^a	LC ^b
				TWA	STEL	TWA	STEL		
0.1 to 0.5	Sodium Carbonate	Soda ash	497-19-8	N. Av.	N. Av.	10mg/m ^{3,c}	N. Av.	>3000	N. Av.
0.1 to 0.5	Sodium hydroxide	Caustic soda	1310-73-2	2 mg/m ³	N. Av.	2mg/m ³ (ceiling)	N. Av.	N. Av.	N. Av.
0.1 to 0.5	Fatty acids, C8	Octanoic acid	124-07-2	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0.1 to 0.8	Propylene glycol ether	N. Av.	29911-28-2	N. Av.	N. Av.	N. Av.	N. Av.	>4400	N. Av.
0.1 to 0.5	Poly Ethoxylated alcohols	Secondary Ethoxylated alcohol	84133-50-6	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0.1 to 0.5	Alcohol C6-C10, ethoxylated	Linear alcohol alkoxylate	68987-81-5	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.
0.1 to 0.5	Silicic acid, sodium salt	Sodium silicate	1344-09-8	N. Av.	N. Av.	5mg/m ^{3,d}	N. Av.	N. Av.	N. Av.
0.1 to 0.5	Tallow amine ethoxylated	Tallow amine ethoxylated	61791-26-2	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.	N. Av.

N.Av. = Not Available

^aOral-Rat LD₅₀(mg/kg)

^bInhalation-Rat LC₅₀

^cPNOC (Particles Not Otherwise Classified)

^dmanufacturer recommended TWA 5mg/m³
(ceiling) respirable dust

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE

Liquid, clear, tan color, and mild detergent odor.

CAUTION

HEALTH HAZARD

May irritate the respiratory tract (nose, throat, and lungs), eyes, and skin.
Product may be heated during use and could cause serious thermal burns.

POTENTIAL HEALTH EFFECTS

INHALATION (BREATHING):

High concentrations of vapor or mist may irritate the respiratory tract (nose, throat, and lungs).

EYES:

May cause irritation. Effects will be minimized with washing.

SKIN:

May cause irritation. Not likely to be absorbed through the skin in harmful amounts.

INGESTION

(SWALLOWING): May cause digestive tract irritation.

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MEDICAL CONDITIONS

AGGRAVATED BY

EXPOSURE: Individuals with pre-existing respiratory tract (nose, throat, and lungs), eye, and/or skin disorders may have increased susceptibility to the effects of exposure.

CHRONIC: Prolonged or repeated skin contact may cause drying, cracking, redness, itching, and/or swelling (dermatitis).

CANCER INFORMATION: No known carcinogenicity. For more information, see **SECTION 11: CARCINOGENICITY**.

POTENTIAL ENVIRONMENTAL EFFECTS

Not available. Also see **SECTION 12: ECOLOGICAL INFORMATION**.

SECTION 4: FIRST AID MEASURES

**INHALATION:
(BREATHING)** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Oxygen should only be administered by qualified personnel. Someone should stay with victim. Get medical attention if breathing difficulty persists.

EYES: If irritation or redness from exposure to vapor or mist develops, move away from exposure into fresh air and flush with water for 5 minutes. Upon direct contact with liquid, immediately flush eyes with plenty of lukewarm water, holding eyelids apart, for 15 minutes. Get medical attention.

SKIN: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain develops or persists.

**INGESTION:
(SWALLOWING)** Do NOT induce vomiting. Immediately get medical attention. Call medical emergency telephone number (1-800-468-1760) for additional information. If spontaneous vomiting occurs, keep head below hips to avoid breathing the product into the lungs. Never give anything to an unconscious person by mouth.

NOTE TO PHYSICIANS: Treat symptomatically and supportively. Ingesting large amounts may cause systemic alkalosis. Treatment may vary with condition of victim and specifics of incident. Call medical emergency telephone number (1-800-468-1760) for additional information.

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SECTION 5: FIRE FIGHTING MEASURES
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FLASH POINT: >212°F (>100°C)

FLAMMABLE LIMITS IN AIR: Not applicable.

AUTOIGNITION

TEMPERATURE: Not applicable.

HAZARDOUS COMBUSTION

PRODUCTS: Product itself does not burn, but may decompose upon heating to produce carbon monoxide and nitrogen oxides.

CONDITIONS OF

FLAMMABILITY: Product will not burn.

EXTINGUISHING MEDIA: Not applicable.

NFPA 704

HAZARD

IDENTIFICATION:

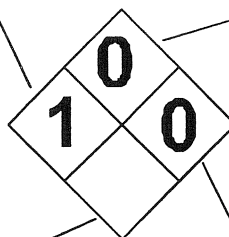
This information is intended solely for the use by individuals trained in this system.

HEALTH HAZARD
(BLUE)

FIRE HAZARD
(RED)

**SPECIFIC
HAZARD**
(WHITE)

REACTIVITY
(YELLOW)



**FIRE FIGHTING
INSTRUCTIONS:**

Keep storage containers cool with water spray. A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

**FIRE AND
EXPLOSION HAZARDS:**

Heated containers may rupture. "Empty" containers may retain residue and can be dangerous. Not sensitive to mechanical impact or static discharge.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Spilled product is slippery. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid breathing vapor or mist. Contain away from surface waters and sewers. Contain spill as a liquid for possible recovery or sorb with compatible sorbent material and shovel with a clean tool into a sealable container for disposal.

Additionally, for large spills: Dike far ahead of liquid spill for collection and later disposal.

There may be specific regulatory reporting requirements associated with spills, leaks, or releases of this product. Also see **SECTION 15: REGULATORY INFORMATION**.

SECTION 7: HANDLING AND STORAGE

HANDLING: Use clean tools. Do not breathe vapor or mist. Use in a well ventilated area. Avoid contact with eyes, skin, clothing, and shoes.

SHIPPING AND STORING: Keep container tightly closed when not in use and during transport. Store containers in a cool, dry place. Empty product containers may retain product residue and can be dangerous.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: Not required under normal conditions of use

EYE PROTECTION: Where eye contact is likely, wear chemical goggles; contact lens use is not recommended.

SKIN PROTECTION: Where skin contact is likely, wear nitrile, neoprene, or equivalent protective gloves; use of polyvinyl alcohol (PVA) or equivalent gloves is not recommended.

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**PERSONAL
HYGIENE:**

To avoid skin contact where spills and splashes are likely, wear appropriate chemical-resistant faceshield, boots, apron, whole body suits, or other protective clothing.

Use good personal hygiene. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco products. Clean contaminated clothing, shoes, and protective equipment before reuse. Discard contaminated clothing, shoes, or protective equipment if they cannot be thoroughly cleaned. Discard leather articles, such as shoes, saturated with the product.

**OTHER
PROTECTIVE
EQUIPMENT:**

Where spills and splashes are likely, facilities storing or using this product should be equipped with an emergency eyewash and shower, both equipped with clean water, in the immediate work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
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PHYSICAL STATE,

APPEARANCE, AND ODOR: Liquid, clear, amber color, and mild detergent odor.

ODOR THRESHOLD: Not available.

MOLECULAR WEIGHT: Not applicable.

SPECIFIC GRAVITY: 1.005 g/ml (water = 1)

DENSITY: 8.4 US Pounds/Gallon

VAPOR DENSITY: Less than 1 (air = 1)

VAPOR PRESSURE: 17.5 mm Hg at 68°F (20°C) (approximately)

BOILING POINT: 212°F (100°C)

FREEZING/MELTING POINT: 32°F (0°C)

pH:	Solution Concentration	pH
	2.5%	10.4
	5%	10.5
	10%	11.0
	20%	11.8

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EVAPORATION RATE: less than 1(butyl acetate = 1)

SOLUBILITY IN WATER: Complete.

FLASH POINT: >212°F (>100°C)

FLAMMABLE LIMITS IN AIR: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressures.

INCOMPATIBILITY: Avoid acids, oxidizing agents, or reducing agents.

REACTIVITY: Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.

HAZARDOUS DECOMPOSITION PRODUCTS: None under normal temperatures and pressures. See also **SECTION 5: HAZARDOUS COMBUSTION PRODUCTS**.

SECTION 11: TOXICOLOGICAL INFORMATION
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SENSITIZATION: Based on best current information, there is no known human sensitization associated with this product.

MUTAGENICITY: Based on best current information, there is no known mutagenicity associated with this product.

CARCINOGENICITY: Based on best current information, there is no known carcinogenicity as regulated by OSHA; as categorized by ACGIH A1 or A2 substances; as categorized by ARC Group 1, Group 2A, or Group 2B agents; or as listed by NTP as either known carcinogens or substances for which there is limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.

REPRODUCTIVE TOXICITY: Based on best current information, there is no known reproductive toxicity associated with this product.

TERATOGENICITY: Based on best current information, there is no known teratogenicity associated with this product.

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**TOXICOLOGICALLY
SYNERGISTIC
PRODUCT(S):** Based on best current information, there are no known
toxicologically synergistic products associated with this
product.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY: Not available.

**OCTANOL/WATER
PARTITION COEFFICIENT:** Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL: Dispose in accordance with federal, state, provincial, and local
regulations. Regulations may also apply to empty containers. The
responsibility for proper waste disposal lies with the owner of the
waste. Contact Safety-Kleen regarding recycling or proper disposal.

**USEPA WASTE
CODE(S):** This product, if discarded, would not be a hazardous waste by
listing, and is not expected to be a characteristic hazardous waste.
Processing, use, or contamination by the user may change the waste
code(s) applicable to the disposal of this product.

SECTION 14: TRANSPORT INFORMATION

DOT: Not regulated.

TDG: Not regulated.

**EMERGENCY RESPONSE
GUIDE NUMBER:** Not applicable.
Reference *North American Emergency Response Guidebook*

SECTION 15: REGULATORY INFORMATION

USA REGULATIONS

VOLATILE ORGANIC COMPOUNDS (AS REGULATED)

2.5% Solution 0.51 WT%; 0.044 LB/US gal; 5.25 g/L; As per 40 CFR Part 51.100(s)
Product Vapor Pressure @20°C = 17.5 mmHg
Product does not contain photochemically reactive solvents

5.0% Solution 1.02 WT%; 0.088 LB/US gal; 10.5 g/L; As per 40 CFR Part 51.100(s)
Product Vapor Pressure @20°C = 17.5 mmHg
Product does not contain photochemically reactive solvents

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10% Solution 2.04 WT%; 0.175 LB/US gal; 21g/L; As per 40 CFR Part 51.100(s)
Product Vapor Pressure @20°C = 17.5 mmHg
Product does not contain photochemically reactive solvents

SARA SECTIONS 302 AND 304: This product does not contain any extremely hazardous substances listed pursuant to Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) Section 302 or Section 304 as identified in 40 CFR Part 355, Appendix A and B.

SARA SECTIONS 311 AND 312: This product poses the following health hazards as defined in 40 CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA):
 Immediate (Acute) Health Hazard

SARA SECTION 313: This product does not contain toxic chemicals subject to the requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CERCLA: Based on the ingredients listed in **SECTION 2**, this product contains the following "hazardous substances" listed under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) in 40 CFR Part 302, Table 302.4 with the following reportable quantity (RQ):

Material	% by Wt.	CAS	RQ
Sodium hydroxide	< 0.1	1310-73-2	1000 LB (454 kg)

TSCA: All the components of this product are listed on, or are automatically included as "naturally occurring chemical substances" on, or exempted from the requirement to be listed on, the TSCA Inventory.

CALIFORNIA: This product does not contain detectable amounts of any chemical known to the State of California to cause cancer.

 This product does not contain detectable amounts of any chemical known to the State of California to cause birth defects or other reproductive harm.

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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WHMIS: E

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): All the components of this product are listed on, or are automatically included as “substances occurring in nature” on, or are exempted from the requirement to be listed on, the Canadian Domestic Substances List (DSL).

SECTION 16: OTHER INFORMATION

REVISION INFORMATION: Add statement concerning the product being heated to Emergency Overview statement box in Section 3.

LABEL/OTHER INFORMATION: Not available

User assumes all risks incident to the use of this product. To the best of our knowledge, the information contained herein is accurate. However, The ArmaKleen Company assumes no liability whatsoever for the accuracy or completeness of the information contained herein. No representations or warranties, either expressed or implied, or merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers. The data contained on this sheet apply to the product as supplied to the user.

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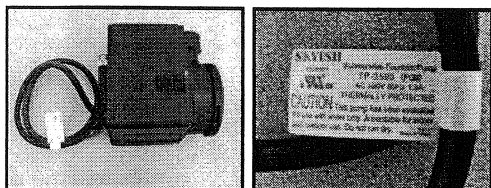
4 in 1 Field Notice (M2387 HPM)



FIELD NOTICE on Heater Pump Module (HPM) M2387 Changes

- Starting around July 2011 the HPM M2387's have had their plastic pumps replaced with a stronger, more durable pump. To date we have replaced over 14,000 pumps. Instructions are included on how to identify the new vs. old pump module. Please refer to the Field Notice Model 2387 POM Pump in your launch kit.
- Currently all GFCI (Ground Fault Circuit Interrupter) are being replace with components that have higher thermal properties and cycle count dramatically increasing their life.

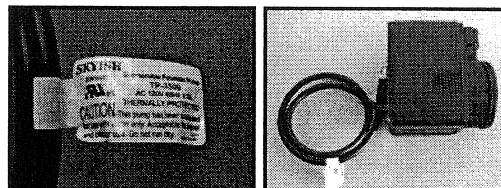
New



Red Lettering

VS

Old



Black Lettering

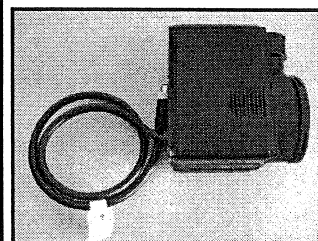
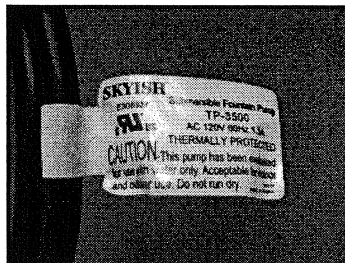
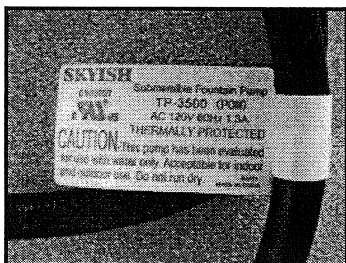
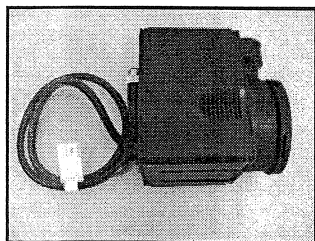


FIELD NOTICE: PRODUCT INFORMATION EFFECTIVE IMMEDIATELY



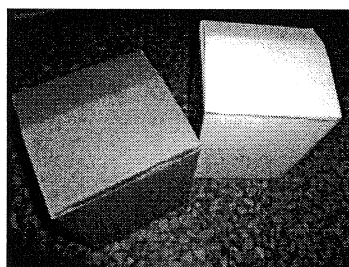
Product Affected: The new, Armakleen 4-in-1 Cleaner and the Model 2387 HPM (p/n 2387)

SK Personnel Affected: BGM, (all branch personnel involved in placing 4-n-1 Cleaner Model 2387 installation and service)



New POM Pump with Red letters on Label

Current ABS Pump with Black letters on Label



POM Pump comes in Brown Box
ABS Pump comes in White Box

Objective: To notify SK:

1. The new, Armakleen 4-n-1 Cleaner is more concentrated, use $\frac{1}{2}$ as much as all other cleaners
2. Use the new POM pump, for the Model 2387, with all 4-n-1 Cleaner placements
3. The POM pump is recognized by a red-lettered label on the cord

Reason for Change: The 4-n-1 Cleaner is stronger and will attack the older ABS pump module in the Model 2387. The POM pump is made of a chemical resistant material that lasts longer

Affected Customers: All Customers using the 4-n-1 Cleaner in the Aqueous Parts Washer with a Model 2387 HPM

Instructions:

1. Use $\frac{1}{2}$ the amount of 4-n1 Cleaner for all other cleaners. See the following table:

Model	Current Cleaner	Strength	New Cleaner	New Strength
26.1	MPC	5%	4-n-1 Cleaner	5%
94, 90, 91 (2387)	MPC	20%	4-n-1 Cleaner	10%
TL-2, TL-25, FL-250, FL-500	Combo Cleaner	10%	4-n-1 Cleaner	10%
AQ-1	Combo Cleaner	20%	4-n-1 Cleaner	10%
11, 81.8, 43	MM-Dip	10%	4-n-1 Cleaner	5%

2. Use the new POM pump, in the Model 2387 HPM, wherever the new 4-n-1 Cleaner is used
3. Dispose the older ABS pump

Points of Contact:

For questions or general info, contact Gregg Little @ 972-265-2581, Gregg.little@safety-kleen.com