MATERIAL SAFETY DATA SHEET

99-5000

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 1.1 | MSDS Revision Date: 01/01/2010

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**K & N AIR FILTER OIL AEROSOL**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	None reported by the manufacturer
1.4	Trade Names:	K & N Air Filter Oil Aerosol
1.5	Product Use:	Automotive Lubricant
1.6	Manufacturer's Name:	K&N Engineering, Inc.
1.7	Manufacturer's Address:	P.O. Box 1329, Riverside, CA 92502-1329 USA
1.8	Business Phone:	+1 (800) 858-3333
1.9	Emergency Phone:	**CHEMTREC +1 (800) 424-9300/+1 (703) 527-3887**

CHEMICAL RESPONSE CARD:	21
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	2
FLAMMABILITY:	4
REACTIVITY:	0
PERSONAL PROTECTION:	X

2. HAZARD IDENTIFICATION

2.1 Hazard Identification:

This product is classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC:1088 (2004) and ADG Code (Australia). Extremely flammable aerosol. Vapor Harmful. Excessive inhalation of vapors may cause dizziness, nausea, and headache, loss of consciousness or even death if exposure is prolonged. May be harmful or fatal if swallowed. Repeated exposure may present additional hazards.

2.2 Routes of Entry:

Inhalation:	YES	Absorption:	YES	Ingestion:	YES

2.3 Effects of Exposure:

EYES: May cause irritation, redness and tearing.
SKIN: may cause irritation, defatting, drying and cracking of skin.
INGESTION: May cause, gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs may cause chemical pneumonitis, which can be fatal. Can be fatal if inhaled or ingested.
INHALATION: Vapors may be irritating to nose, throat and respiratory tact. Excessive inhalation of vapors may cause kidney damage, cardiac arrhythmia and Central Nervous System effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

2.4 Symptoms of Exposure:

EYES: May cause irritation, redness and tearing.
SKIN: may cause irritation, defatting, drying and cracking of skin.
INGESTION: May cause, gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs may cause chemical pneumonitis, which can be fatal. Can be fatal if inhaled or ingested.
INHALATION: Vapors may be irritating to nose, throat and respiratory tact. Excessive inhalation of vapors may cause kidney damage, cardiac arrhythmia and Central Nervous System effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

2.5 Acute Health Effects:

EYES: May cause irritation, redness and tearing.
SKIN: may cause irritation, defatting, drying and cracking of skin.
INGESTION: May cause, gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of material into the lungs may cause chemical pneumonitis, which can be fatal. Can be fatal if inhaled or ingested.
INHALATION: Vapors may be irritating to nose, throat and respiratory tact. Excessive inhalation of vapors may cause kidney damage, cardiac arrhythmia and Central Nervous System effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

2.6 Chronic Health Effects:

Prolonged or repeated skin contact may cause irritation, dry skin, skin rash and inflammation.

2.7 Target Organs:

Eyes and upper respiratory tract.

2.8 Toxicological Properties:

None reported by the manufacturer.

See Section 16 for Additional Definitions of Terms Used.

NOTE: All WHMIS required information is included – it is located in appropriate sections based on the ANSI Z400.1-2004 format.

3. COMPOSITION & INGREDIENTS

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm PEL	OSHA ppm STEL	OSHA ppm IDLH	OTHER
PETROLEUM DISTILLATES, HYDROTREATED, HEAVY PARAFFINIC	64742-54-7	PY8035501	265-157-1	0-100	5	NF	NF	NF	NF	5	NF	NF	MIST
PETROLEUM LUBRICATING OILS (PETROLEUM), HYDROTREATED SPENT	64742-58-1	NA	265-161-3	0-100	5	NA	NF	NF	NF	5	NA	NA	MIST
METHYL LARDATE	68082-78-0	NA	268-375-5	0-100	NA	NA	NF	NF	NF	NA	NA	NA	
PETROLEUM GASES, LIQUIFIED SWEETENED	68476-86-8	NA	270-705-8	0-100	10	NA	NF	NF	NF	10	NA	NA	MIST

4. FIRST AID MEASURES

4.1 First Aid:

EYES: Immediately flush eyes with plenty of running water for at least 15 minutes, lifting upper and lower lids, occasionally. If irritation persists, repeat flushing. Get medical attention.

SKIN: Wash thoroughly with soap and water. If irritation persists, seek medical attention. Remove contaminated clothing and wash before reuse.

INGESTION: If ingested call physician or poison control center immediately. Do no induce vomiting. Rinse mouth with water. Aspiration of material into lungs due to vomiting may cause chemical pneumonitis which can be fatal.

INHALATION: Remove affected person to fresh air. If breathing if difficult, administer oxygen. If breathing stops give artificial respiration. Keep person warm, quiet and get medical attention.

4.2 Medical Conditions Aggravated by Exposure:

None reported by the manufacturer.

HEALTH	2
FLAMMABILITY	4
REACTIVITY	0
PROTECTIVE EQUIPMENT	X

EYES	SKIN		

5. FIREFIGHTING MEASURES

5.1 Flashpoint & Method:

NA

5.2 Autoignition Temperature:

NA

5.3 Flammability Limits: Lower Explosive Limit (LEL): NA Upper Explosive Limit (UEL): NA

5.4 Fire & Explosion Hazards:

The flammability of an aerosol by WHMIS definition is determined by its flame-extension or its flashback. The flame extension of this product is great than 45 cm. Fire Code: Level 3 Aerosol (as per NFPA 30B). Do not use in present of open flame or spark. Do not place in hot water or near radiators, stoves or other sources of heat. Exposure to heat or sunlight may cause cans to burst and propel contents. Water from fog nozzles may be helpful in cooling un-ruptured containers to prevent build-up. Burning may produce hazardous products of combustion including fumes, smoke, carbon dioxide and/or carbon monoxide.

5.5 Extinguishing Methods:

Dry chemical, foam, and carbon dioxide.

5.6 Firefighting Procedures:

Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Avoid spreading burning liquid with water used to cool containers. Keep containers cool until well after the fire is out. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters should wear full-face, self-contained breathing apparatus (MSHA/NIOSH approved or the equivalent) and impervious clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1	Spills: **Ventilate area and eliminate all sources of ignition. Keep away from heat. Absorb with an inert, dry material and place in an appropriate waste disposal container.**

7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices: **Do not use in the presence of open flame, sparks or ignition sources. Keep away from heat. Avoid breathing vapors or spray mists. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. After handling, always wash hand thoroughly with soap and water.**
7.2	Storage & Handling: **Store in a cool, dry place. Do not place in hot water or near radiators, stoves or sources of heat. Do not puncture or incinerate container or store at temperatures over 50°C or in direct sunlight.** **Maximum recommended shelf-life: 36 months.**
7.3	Special Precautions: **Contents under pressure. Container may explode if heated. Direct inhalation of spray may be harmful. Keep out of reach of children.**

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **Use under well-ventilated conditions.**
8.2	Respiratory Protection: **NIOSH organic vapor respirator with dust pre-filter for prolonged exposure or in confined areas.**
8.3	Eye Protection: **Safety glasses with side shields should be used.**
8.4	Hand Protection: **Chemical resistant gloves should be used.**
8.5	Body Protection: **Chemical resistant clothing should be used.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**NA**
9.2	Boiling Point:	**NA**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure:	**NA**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Color:	**Oily Liquid**
9.8	Odor Threshold:	**Petroleum Odor**
9.9	Solubility:	**Dispersible**
9.10	pH	**NA**
9.11	Viscosity:	**NA**
9.12	Coefficient Oil/Water Distribution:	**NA**
9.13	Additional Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability: **Stable, when used as intended.**
10.2	Hazardous Decomposition Products: **Carbon, nitrogen and sulfur oxides, hydrocarbons, phosgene.**
10.3	Hazardous Polymerization: **Will not occur.**
10.4	Conditions to Avoid: **Heat, sparks, open flame and all possible ignition sources.**
10.5	Incompatible Substances: **Avoid contact with strong oxidizing agents, strong reducing agents, strong acids and strong alkalies.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	
	Based on animal testing from similar materials & products, the acute toxicity of this product is expected to be: Distillates, Petroleum, Solvent-Refined, Heavy Paraffinic – LD_{50} (oral, rat) > 5000 mg/kg; LD_{50} (dermal, rabbit) > 2000 mg/kg; Distillates, Petroleum, Hydrotreated, Heavy Paraffinic – LD_{50} (oral, rat) > 5000 mg/kg; LD_{50} (dermal, rabbit) > 2000 mg/kg.	
11.2	Acute Toxicity:	
	Mineral oil mists derived from highly refined oils are reported to have low acute and sub-acute toxicities in animals. Effects from single and short-term repeated exposures to high concentrations of mineral oil mists well above applicable workplace exposure levels include lung inflammatory reaction, lipoid granuloma formation and lipoid pneumonia. In acute and sub-acute studies involving exposures to lower concentrations of mineral oil mists at or near current work place exposure levels produced no significant toxicological effects.	
11.3	Chronic Toxicity:	
	In long term studies (up to two years) no carcinogenic effects have been reported in any animal species tested.	
11.4	Suspected Carcinogen:	
	No	
11.5	Reproductive Toxicity:	
	Mutagenicity:	**This product is not expected to cause mutagenic effects in humans.**
	Embryotoxicity:	**This product is not expected to cause embryotoxic effects in humans.**
	Teratogenicity:	**This product is not expected to cause teratogenic effects in humans.**
	Reproductive Toxicity:	**This product is not expected to cause reproductive harm in humans.**
11.6	Irritancy of Product:	
	NA	
11.7	Biological Exposure Indices:	
	NA	
11.8	Physician Recommendations:	
	The viscosity range of the product(s) represented by this MSDS is between 100 and 400 SUS at 100°F. Accordingly, upon ingestion there is a moderate risk of aspiration. Careful gastric lavage or emesis may be considered to evacuate large quantities of material. Subcutaneous or intramuscular injection requires prompt surgical debridement.	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability:
	The manufacturer has not reported any detailed studies on the environmental fate of the material. However, prudent practice would dictate the material not be allowed to enter the environment.
12.2	Effects on Plants & Animals:
	The manufacturer has not reported any animal or plant effects
12.3	Effects on Aquatic Life:
	The manufacturer has not reported any aquatic life effects.

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal:
	Dispose of in accordance with local & state or provincial hazardous waste laws.
13.2	Special Considerations:
	If the material is unsuitable for recycling or reclamation, enclosed-controlled incineration is recommended unless otherwise prohibited by local ordinance.

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **CONSUMER COMMODITY, ORM-D**
14.2	IATA (AIR): **ID8000, CONSUMER COMMODITY, 9**
14.3	IMDG (OCN): **UN1950, AEROSOLS, 2.1, LTD QTY**
14.4	TDGR (Canadian GND): **LIMITED QUANTITY / QUANTITÉ LIMITÉE**
14.5	ADR/RID (EU): **UN1950, AEROSOLS, 2.1, LTD QTY, *ADR***
14.6	MEXICO (SCT): **UN1950, AEROSOLES, 2.1, CANTIDAD LIMITADA**
14.7	ADGR (AUS): **UN1950, AEROSOLS, 2.1, LTD QTY**

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements: **This product does not contain any substances that are subject to SARA Section 313 reporting requirements.**
15.2	SARA Threshold Planning Quantity: **NA**
15.3	TSCA Inventory Status: **All chemical substances of this product are listed on the TSCA inventory or are otherwise exempt from inventory status.**
15.4	CERCLA Reportable Quantity (RQ): **NA**
15.5	Other Federal Requirements: **NA**
15.6	Other Canadian Regulations **All chemical substances of this product are listed on the CEPA DSL/NDSL or are exempt from list requirements. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.**
15.7	State Regulatory Information: **New Jersey Worker & Community Right to Know Act, N.J.A.C. 8:59-5 Labeling Information: Lubricating Oil Distillates (Petroleum), Hydrotreated Heavy Paraffinic can be found on the following state right to know lists: California, Massachusetts, Minnesota, New Jersey, Pennsylvania, and Rhode Island.**
15.8	67/548/EEC (European Union) Requirements: **The primary components of this product are listed in Annex I of EU Directive 67/548/EEC:** **Distillates (Petroleum), Hydrotreated Heavy Paraffinic: (T) Toxic. R: 45 May cause cancer. S: 2-9-16-33-53-45 – Keep out of the reach of children. Keep container in a well-ventilated place. Keep away from sources of ignition - No smoking. Avoid exposure-obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).Petroleum gases, liquefied, sweetened** **Petroleum Gases, Liquified Sweetened: Highly Flammable (F+), (T) Toxic. R: 12 – Extremely flammable. May cause cancer. May cause heritable genetic damage. S: 53-45 Keep container in a well-ventilated place. Keep away from sources of ignition - No smoking. Avoid exposure-obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).** **HazChem Code: None allocated. Poison schedule: S5**

16. OTHER INFORMATION

16.1	Other Information: **NA**	
16.2	Terms & Definitions: **Please see last page of this MSDS.**	
16.3	Disclaimer: This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & K & N Engineering's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.	
16.4	Prepared for: **K & N Engineering, Inc.** **PO Box 1329** **Riverside, CA 92502** **Phone: +1 (800) 858-3333** **Fax: +1 (951) 826-4001** **e-mail: tech@knfilters.com**	
16.5	Prepared by: **Steven Charles Hunt** **ShipMate, Inc.** **780 Buckaroo Trail, Suite D** **Sisters, OR 97759 USA** **Phone: +1 (310) 370-3600** **Fax: +1 (310) 370-5700** **e-mail: shipmate@shipmate.com**	

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number

EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

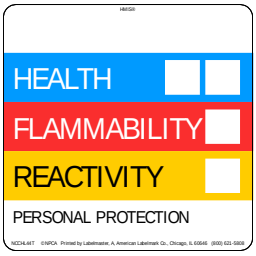
FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

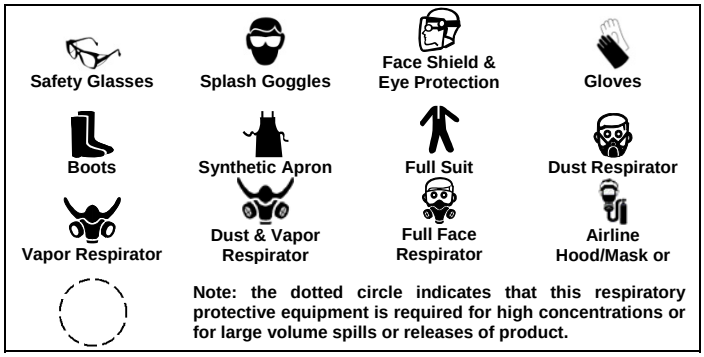
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard



PERSONAL PROTECTION RATINGS:

A		**G**	
B		**H**	
C		**I**	
D		**J**	
E		**K**	
F		**X**	**Consult your supervisor or S.O.P. for special handling directions.**



FLAMMABILITY LIMITS IN AIR:

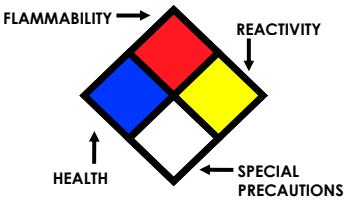
Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

OTHER STANDARD ABBREVIATIONS:

NA	Not Available
NR	No Results
NE	Not Established
NF	Not Found
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

NATIONAL FIRE PROTECTION ASSOCIATION: NFPA HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
~~W~~	Use No Water
OX	Oxidizer



TOXICOLOGICAL INFORMATION:

LD_{50}	Lethal Dose (solids & liquids) which kills 50% of the exposed animals s
LC_{50}	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD_{lo}	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD_{lo}, LD_{lo}, & LD_o or TC, TC_o, LC_{lo}, & LC_o	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL_m	Median threshold limit
log K_{OW} or log K_{OC}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

CPR	Canada's Controlled Product Regulations
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
EU	European Union (European Union Directive **67/548/EEC)**
DSL	Canadian Domestic Substance List
MAK	Mandat und die Arbeitsweise der Kommission (Work Area Commission)
NDSL	Canadian Non-Domestic Substance List
NOHSC	National Occupational Health & Safety Code (Australia)
PSL	Canadian Priority Substances List
TC	Transport Canada
TSCA	U.S. Toxic Substance Control Act
WHMIS	Canadian Workplace Hazardous Material Information System

EC INFORMATION:

C	**E**	**F**	**N**	**O**	**T+**	**Xi**	**Xn**
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful

WHMIS INFORMATION:

A	**B**	**C**	**D1**	**D2**	**D3**	**E**	**F**

MATERIAL SAFETY DATA SHEET

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards | MSDS Revision: 1.1 | MSDS Revision Date: 01/01/2010

1. PRODUCT IDENTIFICATION

1.1	Product Name:	**K & N AIR FILTER CLEANER**
1.2	Chemical Name:	See ingredients listed in section 3
1.3	Synonyms:	None reported by the manufacturer
1.4	Trade Names:	K & N Air Filter Cleaner
1.5	Product Use:	Automotive – Lubricant
1.6	Manufacturer's Name:	K&N Engineering, Inc.
1.7	Manufacturer's Address:	P.O. Box 1329, Riverside, CA 92502-1329 USA
1.8	Business Phone:	+1 (800) 858-3333
1.9	Emergency Phone:	**CHEMTREC +1 (800) 424-9300/+1 (703) 527-3887**

CHEMICAL RESPONSE CARD:	95
RESPONSE TEAM PPE:	
WHMIS:	
HEALTH:	2
FLAMMABILITY:	0
REACTIVITY:	0
PERSONAL PROTECTION:	B

2. IDENTIFICATION OF RISKS

2.1 Hazard Identification:

This product is classified as a HAZARDOUS SUBSTANCE but not as DANGEROUS GOODS according to the classification criteria of NOHSC:1088 (2004) and ADG Code (Australia). Skin and eye irritant.

2.2 Routes of Entry:	Inhalation:	YES	Absorption:	YES	Ingestion:	YES

2.3 Effects of Exposure:

EYES: This product can cause transient mild to moderate eye irritation with short-term contact with liquid sprays or mists.
SKIN: This product can cause mild to moderate, transient skin irritation with short-term exposure.
INGESTION: If swallowed, no significant adverse health effects are anticipated. Ingestion can cause a laxative effect. If aspirated into the lungs, liquid can cause severe lung damage or death.
INHALATION: No significant adverse health effects are expected to occur upon short-term exposure to this product. Aspiration of liquid into the lungs can cause severe lung damage or death.

2.4 Symptoms of Exposure:

EYES: Irritation, redness, and watering.
SKIN: Possible irritation, defatting, or dermatitis (rash), characterized by dry, scaling, red, itching skin.
INGESTION: Laxative effects. Gastrointestinal discomfort, nausea and headache.
INHALATION: May cause irritation to the upper respiratory system. Overexposure to sprays or mists may cause chemical pneumonitis.

2.5 Acute Health Effects:

EYES: Slightly irritating, but will not permanently injure eye tissue.
SKIN: Low toxicity. Frequent or prolonged contact may be irritating to the skin at the site of contact.
INGESTION: Mild toxicity. Laxative effects. Gastrointestinal discomfort, nausea and headache.
INHALATION: Negligible. At elevated temperatures or through mechanical action, may form vapors, mists or fumes that may be irritating to the eyes, nose, throat and lungs.

2.6 Chronic Health Effects:

Prolonged or repeated skin contact can cause mild irritation and inflammation characterized by drying, cracking, or dermatitis.

2.7 Target Organs:

None reported by the manufacturer.

2.8 Toxicological Properties:

None reported by the manufacturer.

3. COMPOSITION & INGREDIENTS

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m³) ACGIH ppm TLV	ACGIH ppm STEL	NOHSC ppm ES-TWA	NOHSC ppm ES-STEL	NOHSC ppm ES-PEAK	OSHA ppm PEL	OSHA ppm STEL	OSHA ppm IDLH	OTHER
SODIUM METASILICATE PENTAHYDRATE	6834-92-0	VV9287500	NA	≤ 5.0	NA	NA	NF	NF	NF	NA	NA	NA	

See Section 16 for Additional Definitions of Terms Used.
NOTE: All WHMIS required information is included – it is located in appropriate sections based on the ANSI Z400.1-2004 format.

4. FIRST AID

4.1 First Aid:

EYES: Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness, or pain persists.

SKIN: Remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with soap and water. Seek medical attention if tissue appears damaged or if irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods. If material is injected under the skin, into muscle, or into the bloodstream, seek medical attention immediately.

INGESTION: Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. Seek medical attention immediately.

INHALATION: Vaporization is not expected at ambient temperatures. This material is not expected to cause inhalation-related disorders under anticipated conditions of use. In case of overexposure, move the person to fresh air.

4.2 Medical Conditions Aggravated by Exposure:

Personnel with pre-existing skin disorders should avoid repeated or prolonged contact with this product.

HEALTH	2
FLAMMABILITY	0
REACTIVITY	0
PROTECTIVE EQUIPMENT	B

EYES	SKIN		

5. FIRE & EXPLOSION HAZARDS

5.1 Flashpoint & Method:

NA

5.2 Autoignition Temperature:

NA

5.3 Flammability Limits: Lower Explosive Limit (LEL): **NA** Upper Explosive Limit (UEL): **NA**

5.4 Fire & Explosion Hazards:

This material can burn but will not readily ignite. This material will release vapors (toxic fumes of sodium oxide) when heated above the flash point temperature that can ignite when exposed to a source of ignition. Toxic fumes of sodium oxide.

5.5 Extinguishing Methods:

Dry chemical, foam, carbon dioxide, and water fog.

5.6 Firefighting Procedures:

Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Avoid spraying water directly into storage containers because of danger of boilover. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.

6. SPILLS & LEAKS

6.1 Spills:

spill or leak at source if safely possible. Deny entry to all unprotected individuals. Individuals involved in the cleanup must wear appropriate personal protective equipment. Recover free liquid or cover with inert absorbent material and place into appropriate container(s) for disposal. For small spills, absorb or cover with dry earth, sand, or other inert absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers or any natural waterway or drinking supply. Contact appropriate local and/or provincial authorities for assistance and/or reporting requirements. Ensure disposal on compliance with government requirements & secure conformity to local disposal regulations. Notify the appropriate federal & provincial authorities immediately.

7. STORAGE & HANDLING

7.1	Work & Hygiene Practices: **Use normal hygiene practices. Avoid direct skin contact. Wash hands thoroughly after using this product and before eating, drinking, or smoking.**
7.2	Storage & Handling: **Use and store in a cool, dry, well-ventilated area. Keep away from excessive heat. Do not store in unmarked containers or storage devices.** **Maximum recommended shelf-life: 24 months.**
7.3	Special Precautions: **Empty containers may contain product residue. Do not reuse empty containers without commercial cleaning or reconditioning.**

8. EXPOSURE CONTROL & PERSONAL PROTECTION

8.1	Ventilation & Engineering Controls: **General mechanical (e.g., fans) or natural ventilation is sufficient when this product is in use.**
8.2	Respiratory Protection: **None required.**
8.3	Eye Protection: **Safety glasses equipped with side shields should be adequate protection under most conditions of use. Wear goggles and/or face shield if splashing or spraying is anticipated. Have suitable eye wash water available.**
8.4	Hand Protection: **Use gloves constructed of chemical resistant materials such as neoprene or heavy nitrile rubber if frequent or prolonged contact is expected.**
8.5	Body Protection: **Avoid prolonged and/or repeated skin contact. Use clean and impervious protective clothing (e.g., neoprene or Tyvek®) if splashing or spraying conditions are present.**

9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	**NA**
9.2	Boiling Point:	**NA**
9.3	Melting Point:	**NA**
9.4	Evaporation Rate:	**NA**
9.5	Vapor Pressure @ 20°C:	**NA**
9.6	Molecular Weight:	**NA**
9.7	Appearance & Colour:	**White liquid**
9.8	Odour Threshold:	**NA**
9.9	Solubility:	**Soluble**
9.10	pH:	**12-13**
9.11	Viscosity:	**NA**
9.12	Coefficient Oil/Water Distribution:	**NA**
9.13	Additional Information:	**NA**

10. STABILITY & REACTIVITY

10.1	Stability: **Stable under normal conditions.**
10.2	Decomposition Products: **Fumes, smoke, carbon monoxide, metal oxides, and trace hydrocarbons.**
10.3	Polymerization: **Will not occur.**
10.4	Conditions to Avoid: **Open flames, sparks, high heat, and close proximity to incompatible substances.**
10.5	Incompatible Substances: **Strong acids, alkalis, and oxidizers.**

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data: **The product has not been tested on animals to obtain toxicological data. There are toxicology data for the components of this product, which are found in the scientific literature. This data has not been presented in this document. Not listed by ACGIH, IARC, NTP, or CA Proposition 65.**	
11.2	Acute Toxicity: **See section 2.5**	
11.3	Chronic Toxicity: **See section 2.6**	
11.4	Suspected Carcinogen: **NE**	
11.5	Reproductive Toxicity:	
	Mutagenicity:	**This product is not expected to cause mutagenic effects in humans.**
	Embryotoxicity:	**This product is not expected to cause embryotoxic effects in humans.**
	Teratogenicity:	**This product is not expected to cause teratogenic effects in humans.**
	Reproductive Toxicity:	**This product is not expected to cause reproductive harm in humans.**
11.6	Irritancy of Product: **NA**	
11.7	Biological Exposure Indices: **NA**	
11.8	Medical Recommendations: **Treat symptomatically.**	

12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: **Analysis for ecological effects has not been conducted on this product.**
12.2	Effect on Plants & Animals: **An environmental fate analysis has not been conducted on this specific product.**
12.3	Effect on Aquatic Life: **There is no specific data available for this product.**

13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: **Dispose of in accordance with federal & provincial hazardous waste laws.**
13.2	Special Considerations: **If the material is unsuitable for recycling or reclamation, enclosed-controlled incineration is recommended unless otherwise prohibited by local ordinance.**

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND): **NOT REGULATED**
14.2	IATA (AIR): **NOT REGULATED**
14.3	IMDG (OCN): **NOT REGULATED**
14.4	TDGR (Canadian GND): **NOT REGULATED**
14.5	ADR/RID (EU): **NOT REGULATED**
14.6	MEXICO (SCT): **NOT REGULATED**
14.7	ADGR (AUS): **NOT REGULATED**

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements: **This product does not contain any substances subject to SARA reporting requirements.**	
15.2	SARA Threshold Planning Quantity: **NA**	
15.3	TSCA Inventory Status: **The components of this product are listed on the TSCA inventory.**	
15.4	CERCLA Reportable Quantity (RQ): **NA**	
15.5	Other Federal Requirements: **NA**	
15.6	Other Canadian Regulations **All chemical substances of this product are listed on the CEPA DSL/NDSL or are exempt from list requirements. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.**	
15.7	State Regulatory Information:	
15.8	67/548/EEC (European Union) Requirements: **The primary component of this product is not listed in Annex I of EU Directive 67/548/EEC.** **Xi - Irritant. R: 36/38 - Irritating to eyes and skin. S: 2-13-24/25- 26-36/37/39-45 - Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).** **HazChem Code: None allocated. Poison Schedule: None allocated**	

16. OTHER INFORMATION

16.1	Other Information: **This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the priorities substances list.**	
16.2	Terms & Definitions: **Please see last page of this MSDS.**	
16.3	Disclaimer: This Material Safety Data Sheet complies with Health Canada's Workplace Hazardous Materials Information System (WHMIS) & U.S. OSHA's Hazard Communication Standard, 29 CFR §1910.1200. To the best of ShipMate's or K & N Engineering's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product. Contact the manufacturer for additional information.	
16.4	Prepared for: **K & N Engineering, Inc.** **PO Box 1329** **Riverside, CA 92502** **Phone: +1 (800) 858-3333** **Fax: +1 (951) 826-4001** **e-mail: tech@knfilters.com**	
16.5	Prepared by: **Steven Charles Hunt** **ShipMate, Inc.** **780 Buckaroo Trail, Suite D** **Sisters, OR 97759 USA** **Phone: +1 (310) 370-3600** **Fax: +1 (310) 370-5700** **e-mail: shipmate@shipmate.com**	

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number

EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
TLV	Threshold Limit Value
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
IDLH	Immediately Dangerous to Life and Health

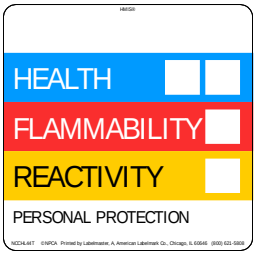
FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

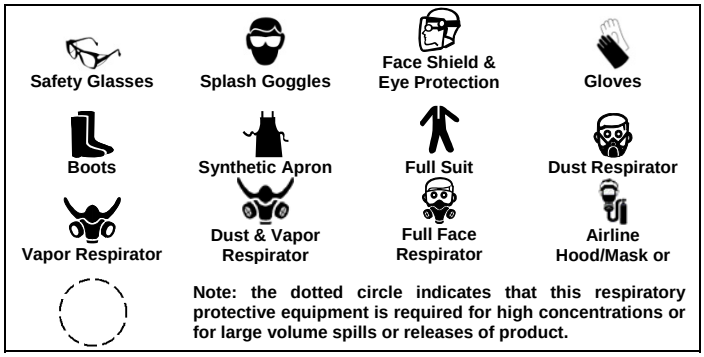
HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard



PERSONAL PROTECTION RATINGS:

A		**G**	
B		**H**	
C		**I**	
D		**J**	
E		**K**	
F		**X**	**Consult your supervisor or S.O.P. for special handling directions.**



Note: the dotted circle indicates that this respiratory protective equipment is required for high concentrations or for large volume spills or releases of product.

FLAMMABILITY LIMITS IN AIR:

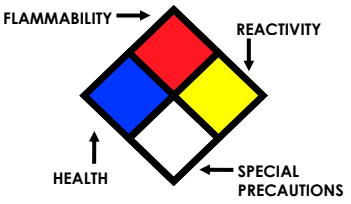
Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

OTHER STANDARD ABBREVIATIONS:

NA	Not Available
NR	No Results
NE	Not Established
NF	Not Found
ND	Not Determined
ML	Maximum Limit
SCBA	Self-Contained Breathing Apparatus

NATIONAL FIRE PROTECTION ASSOCIATION: NFPA HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
~~W~~	Use No Water
OX	Oxidizer



TOXICOLOGICAL INFORMATION:

LD_{50}	Lethal Dose (solids & liquids) which kills 50% of the exposed animals s
LC_{50}	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD_{lo}	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD_{lo}, LD_{lo}, & LD_o or TC, TC_o, LC_{lo}, & LC_o	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL_m	Median threshold limit
log K_{OW} or log K_{OC}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

CPR	Canada's Controlled Product Regulations
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
EU	European Union (European Union Directive **67/548/EEC)**
DSL	Canadian Domestic Substance List
MAK	Mandat und die Arbeitsweise der Kommission (Work Area Commission)
NDSL	Canadian Non-Domestic Substance List
NOHSC	National Occupational Health & Safety Code (Australia)
PSL	Canadian Priority Substances List
TC	Transport Canada
TSCA	U.S. Toxic Substance Control Act
WHMIS	Canadian Workplace Hazardous Material Information System

EC INFORMATION:

C	**E**	**F**	**N**	**O**	**T+**	**Xi**	**Xn**
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful

WHMIS INFORMATION:

A	**B**	**C**	**D1**	**D2**	**D3**	**E**	**F**