



HMIS HEALTH	2
HMIS FLAMMABILITY	0
HMIS REACTIVITY	1
PERSONAL PROTECTION	H

Section 1: Product and Company Identification

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Product Name: Keel Kool™
Generic Name: Aqueous solution of sodium nitrite and borax
Synonyms: NA
Product Description: Engine and closed-loop cooling system treatment
CAS # NA – blend
Date of Revision: 5/26/2006

The fourth digit of the product number designates the container size:
 Keel Kool™-1 - 5 gallon
 Keel Kool™-2 - 30 gallon
 Keel Kool™-3 - 55 gallon

24-Hour Emergency Phone Number: (800) 424-9300 (CHEMTREC)

Section 2: Hazard Identification

Emergency Overview: DANGER! Strong oxidizer. Contact with other material may cause fire. Heat, shock, or contact with other material may cause fire or explosive decomposition. DANGER! Toxic. Harmful if swallowed, inhaled or absorbed through skin. DANGER! Corrosive. Causes irritation or burns to skin, eyes and respiratory tract.

OSHA Regulatory Status: This material is considered hazardous under the OSHA standard.

Potential Health Effects:

Inhalation: Toxic. Causes irritation to the respiratory tract and systemic poisoning with symptoms paralleling ingestion.

Ingestion: Toxic. Can irritate the mouth, esophagus, stomach, etc. Excessive amounts affect the blood and blood vessels. Signs and symptoms of nitrite poisoning include intense cyanosis, nausea, dizziness, vomiting, collapse, spasms of abdominal pain, rapid heart beat, irregular breathing, coma, convulsions, and death due to circulatory collapse. **Estimated lethal dose 16 to 33 grams (0.5 to 1 oz).**

Skin Contact: Causes irritation, redness and pain. May be absorbed through the skin causing systemic poisoning; symptoms may parallel ingestion.

Eye Contact: Causes burns, irritation, redness, and pain.

Chronic Exposure: Repeated exposure through any route may cause symptoms similar to acute toxicity. May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Animal studies have reported the development of tumors. Sodium nitrate may react with secondary or tertiary amines to form nitrosamines (certain nitrosamines are cancer suspect agents).

Aggravation of Pre-existing Conditions: No information found.

Target Organs: Blood, cardiovascular system, smooth muscle.

Section 3: Composition / Information On Ingredients

Component	CAS #	Weight %	OSHA PEL	ACGIH TLV
Sodium nitrite	7632-00-0	5 – 10	None	None
Sodium borate pentahydrate	12179-04-3	2 – 7	None	10 ppm; 2 mg/m ³
Sodium metasilicate	10213-79-3	1 – 5	None	None
Sodium mercaptobenzothiazole	2492-26-4	5 – 10	None	None

Non-hazardous components may or may not be listed. Carcinogens are listed when present at 0.1% or more; components which are otherwise hazardous according to OSHA are listed when present at 1.0% or more. This is not intended to be complete compositional disclosure. See Section 15 for applicable states right to know and other regulatory information.

Section 4: First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin: Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physicians: Absorption of this product into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Moderate degrees of cyanosis need to be treated only by supportive measures: bed rest and oxygen inhalation. If cyanosis is severe, intravenous injection of Methylene Blue, 1mg/kg of body weight may be of value.

Section 5: Fire Fighting Measures

Fire: This product is not itself flammable but contains oxidizers that can ignite or support combustion of other substances. Contact with oxidizable substances may cause violent combustion. May explode when heated to 537C (1000F) or on severe impact or on contact with cyanides, ammonium salts, cellulose, lithium, potassium plus ammonia, and sodium thiosulfate.

Explosion: N/A

Extinguishing Media: Water or water spray in early stages of fire. Foam may also be used, but avoid the use of multi-purpose dry chemical fire extinguishers where contact with sodium nitrite may occur. Water streams may scatter molten material.

Special Precautions: Strong oxidizer when water is removed. Combustible materials may catch fire more easily after being wet with sodium nitrite and dried. Product intensifies combustion of other materials. Fires are difficult to extinguish. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Decomposition of sodium nitrite may leave a caustic residue.

NFPA Rating: Health - 2 Flammability - 0 Reactivity - 1 Other - NA

Section 6: Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

Section 7: Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Avoid storage on wood floors. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Section 8: Exposure Control / Personal Protection

Exposure Guidelines: CAS # 12179-04-3 OSHA PEL None ACGIH TLV 10ppm, 2 mg/m³

Personal Protective Equipment:

Skin Contact: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Contact: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Inhalation: Use NIOSH approved vapor respirator if exposure is unknown or exceeds permissible limits. 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. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Engineering Controls: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Section 9: Physical and Chemical Properties

Appearance	Clear, purple-red liquid	Specific Gravity (g/mL)	1.11
Odor	Mild	pH	12.6
Odor Threshold	NA	Solubility in water	Complete
Melting Point	-10°C (14°F)	% Volatiles	85%
Boiling Point	105°C (221°F)	Evaporation Rate	ND
Flash Point	ND	Vapor Pressure	18 mm @ 25°C (77°F)
Lower Explosive Limit	NA	Vapor Density (air = 1.0)	ND
Upper Explosive Limit	NA	Viscosity	16 cP @ 21°C (70°F)
Auto-Ignition Temperature	ND	log (Part. Coeff oct-H ₂ O)	ND
Decomposition Temp	ND		

Section 10: Stability and Reactivity

Chemical Stability: This product is stable in closed containers at room temperature. The contained sodium nitrite will slowly oxidize to sodium nitrate when exposed to air.

Hazardous Decomposition Products: carbon oxides (CO, CO₂) nitrogen oxides (NO, NO₂...) sulfur oxides (SO₂, SO₃...), small amounts of aromatic and aliphatic hydrocarbons.

Incompatibilities: Reacts vigorously with reducing materials and is incompatible with many substances including ammonium salts, cellulose, cyanides, lithium, potassium plus ammonia, sodium thiosulfate, aminoguanide salts, butadiene, phthalic acid, phthalic anhydride, reducers, sodium amide, sodium disulphite, sodium thiocyanate, urea, wood and organic matter.

Conditions to Avoid: Incompatible materials, combustible materials, reducing agents, strong acids.

Section 11: Toxicological Information

Acute Dose Effects:

Sodium nitrite: Eye: rabbit: 500 mg/24H Mild; Ingestion: Oral, mouse: LD50 = 175 mg/kg; Oral, rabbit: LD50 = 186 mg/kg; Oral, rat: LD50 = 180 mg/kg; Inhalation, rat: LC50 = 5.5 mg/m³/4H

Sodium borate pentahydrate: Eye irritation: Draize test in rabbits produced eye irritation; not considered to be a human eye irritant in normal industrial use.; Ingestion: LD50 in rats is 3,200 to 3,400 mg/kg; Skin/dermal: LD50 in rabbits is greater than 2,000 mg/kg of body weight; Inhalation: LC50 in rats is greater than 2.0 mg/L (or g/m³); Skin irritation: Non-irritant.

Sodium metasilicate: Oral, rat: LD50 = 847 mg/kg

Sodium mercaptobenzothiazole: Acute dermal toxicity (LD50): 5010 mg/kg [Rabbit]; Rabbit patch tests showed visible tissue destruction 4, 24 and 48 hours after application. The material was considered corrosive to the skin under the conditions of the test; Acute oral toxicity (LD50): 5200 mg/kg [Rat]

Section 12: Ecological Information

Environmental Fate: CAS# 7632-00-0: This chemical is not expected to cause oxygen depletion in aquatic systems. It has a high potential to affect secondary waste treatment microorganisms. It has a moderate to high potential to affect aquatic organisms. It has a low potential to affect the germination of some plants.

Ecotoxicity: CAS# 7632-00-0: Acute aquatic effects: 96-hour LC50; Fathead minnow: GT 100 mg/L 96-hour LC50; Water flea: 55 mg/L 24-hour LC50; Mosquito fish: 8.1 mg/L.

Section 13: Disposal Considerations

As a waste, this product as sold IS considered a HAZARDOUS WASTE under RCRA (29 CFR 261) based on the characteristic of corrosivity. EPA Hazardous waste number: D002

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14: Transport Information

Proper Shipping Name: Nitrites, inorganic, aqueous solution, n.o.s.. (contains SODIUM NITRITE and POTASSIUM HYDROXIDE)

DOT Hazard Class: 6.1, 8

UN Number: 3219

Packing Group: II

CERCLA Reportable Quantity (RQ): 1667 lbs; about 180 gal

Releases exceeding the reportable quantity (RQ) must be reported to the National Response Center **(800) 424-8802**.

This data provided for information only. The description shown may not apply to all shipping situations. Consult 49 CFR, or appropriate regulations to properly classify your shipment for transportation.

Section 15: Regulatory Information

TSCA Chemical Inventory: All of the chemicals in this product are listed on the TSCA Inventory.

TSCA Sec 4 Chemical Test Rule: None of the chemicals in this product are under a Chemical Test Rule.

TSCA Sec 8(d): None of the chemicals in this product are on the Health and Safety Reporting List.

TSCA Sec 12(b) Notices of Export: None of the chemicals in this product are on this list.

TSCA Significant New Use Rule (SNUR): None of the chemicals in this product are on this list.

SARA Sec 302 TPQ: None of the chemicals in this product have a TPQ.

SARA Sec 304 RQ: None of the chemicals in this product have a RQ.

SARA Sec 311/312: Acute – YES; Chronic – YES; Fire – YES; Release of Pressure – NO; Reactivity – YES

SARA 313 List: Sodium nitrite is reportable under Section 313 Title III and 40 CFR Part 372

CERCLA Hazardous Substances and corresponding RQs: 1667 lbs (180 gal) based on Sodium nitrite.

RCRA: None of the chemicals in this product are on this list.

Clean Air Act: Hazardous Air Pollutants? NO **Class 1 Ozone Depleters?** NO **Class 2 Ozone Depleters?** NO

Clean Water Act: Hazard Substance? CAS# 7632-00-0 **Priority Pollutant?** NO **Toxic Pollutant?** NO

Chemical Weapons Convention: None of the chemicals in this product are on this list.

Drug Enforcement Agency (DEA) CDTA: None of the chemicals in this product are on this list.

OSHA: None of the chemicals in this product are considered Highly Hazardous by OSHA.

FDA: NA

State Right-to-Know Lists: CAS# 7632-00-0 is on the Right to Know lists of California, New Jersey, Pennsylvania and Massachusetts.

Section 16: Other Information

Abbreviations and acronyms used:

ACGIH	American Congress of Governmental Industrial Hygienists	NA	not applicable, not available
ANSI	American National Standards Institute	NIOSH	National Institute for Occupational Safety and Health
atm	atmosphere (pressure unit)	ND	not determined
BOD	biological oxygen demand	NFPA	National Fire Prevention Association
CAS	Chemical Abstracts Service	NTP	National Toxicology Program
CC	closed cup	OC	open cup
CDTA	Chemical Drug and Trafficking Act	OSHA	Occupational Safety and Health Administration
COC	Cleveland Open Cup	Part	partition
COD	chemical oxygen demand	PEL	permissible exposure limits
coeff.	coefficient	ppb	parts per billion
CFR	Code of Federal Regulations	PPE	personal protective equipment
CPR	cardio-pulmonary resuscitation	ppm	parts per million
DEA	Drug Enforcement Agency	psi	pounds per square inch
DOT	Department of Transportation	RCRA	Resource Conservation and Recovery Act
FDA	Food and Drug Administration	RQ	Reportable quantity
IARC	Internat'l Agency for Research on Cancer	RTK	Right to Know
IDLH	immediate danger to life and health	SARA	Superfund Amendments and Reauthorization Act
kg	kilogram	STEL	short-term exposure limit
L	liter	TCC	Tagliabue Closed Cup
LC50	median lethal concentration	TPQ	threshold planning quantity
LD50	median lethal dose	TQ	threshold quantity
LEL	lower explosive limit	TSCA	Toxic Substances Control Act
mg	milligram	TWA	time-weighted average
mL	milliliter	UEL	upper explosive limit

This document was prepared in accordance with 29 CFR 1910.1200 and ANSI Z400.1-2005.

Prepared by Douglas R. Chrisope on May 26, 2006.

REVISION STATEMENT: Changes have been made throughout this Material Safety Data Sheet. Please read the entire document.

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