MATERIAL SAFETY DATA SHEET

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Name	Phone Number			CHEMTREC
Nu-Calgon Wholesaler, Inc.	(314) 469-7000 / (800) 554-5499			(800) 424-9300
Street Address	**City**	**State**	**Postal Code**	**Last Update**
2008 Altom Court	St. Louis	MO	63146-4151	7/1/13
Product Name	**Product Number**	**Product Use**		**EPA Registration #**
Freez-Therm UH	4189-02	Uninhibited Closed system Anti-freeze agent.		N/A

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	% By Wt.	CAS Number	TLV	PEL
Ethylene glycol	>96	107-21-1	100 ppm	50 ppm
Water	<4	7732-18-5		

SECTION 3 – HAZARD IDENTIFICATION

Emergency Overview: WARNING! HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE ALLERGIC SKIN REACTION. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM.

Potential Health Effects

Eyes: Splashes may cause irritation, pain, eye damage.

Skin: Minor skin irritation and penetration may occur.

Ingestion: Initial symptoms in massive dosage parallel alcohol intoxication, progressing to CNS depression, vomiting, headache, rapid respiratory and heart rate, lowered blood pressure, stupor, collapse, and unconsciousness with convulsions. Death from respiratory arrest or cardiovascular collapse may follow. Lethal dose in humans: 100 ml (3-4 ounces).

Inhalation: Vapor inhalation is generally not a problem unless heated or misted. Exposure to vapors over an extended time period has caused throat irritation and headache. May cause nausea, vomiting, dizziness and drowsiness. Pulmonary edema and central nervous system depression may also develop. When heated or misted, has produced rapid, involuntary eye movement and coma.

Chronic Exposure: Repeated small exposures by any route can cause severe kidney problems. Brain damage may also occur. Skin allergy can develop. May damage the developing fetus.

Carcinogenicity: No Data.

Medical Conditions Aggravated be Exposure: Persons with pre-existing skin disorders, eye problems, or impaired liver, kidney, or respiratory function may be more susceptible to the effects of this substance.

SECTION 4 – FIRST AID MEASURES

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

Skin: Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

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

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. Note to Physician:Give sodium bicarbonate intravenously to treat acidosis.Urinalysis may show low specific gravity, proteinuria, pyuria, cylindruria, hematuria, calcium oxide, and hippuric acid crystals. Ethanol can be used in antidotal treatment but monitor blood glucose when administering ethanol because it can cause hypoglycemia. Consider infusion of a diuretic such as mannitol to help prevent or control brain edema and hemodialysis to remove ethylene glycol from circulation.

SECTION 5 – FIREFIGHTING MEASURES

Flash Point: 111°C/232°F

Autoignition Temp: 398°C/748°F

Hazardous Products of Combustion: No Data.

Flammable Limits in Air: lel: 3.2; uel: 15.3. Slight to moderate fire hazard when exposed to heat or flame.

Extinguishing Media: Dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Water spray may be used to extinguish surrounding fire and cool exposed containers. Water spray will also reduce fume and irritant gases.

Fire and Explosion Hazards: Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode when involved in a fire.

Special Firefighting Procedures: 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. Toxic gases and vapors may be released if involved in a fire.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spill or Leak: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! 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

Handling Procedures and Equipment: Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and oxidizing materials. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Storage Requirements: Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from acids and oxidizing materials. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: If the exposure limit is exceeded, a half-face respirator with an organic vapor cartridge and particulate filter (NIOSH type P95 or R95 filter) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor cartridge and particulate filter (NIOSH P100 or R100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. Please note that N series filters are not recommended for this material. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Eye Protection: Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

Protective Clothing: Wear protective gloves and clean body-covering clothing.

Exposure Guidelines: Airborne Exposure Limits: -OSHA Permissible Exposure Limit (PEL): 50 ppm Ceiling
-ACGIH Threshold Limit Value (TLV): 50 ppm Ceiling (vapor)

Specific Engineering Controls (such as ventilation, enclosed process): 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

Physical Form: Liquid	**Freezing Point:** N/A°C/N/A°F	**% Volatile by Weight:** 100%
Color: Yellow-green	**Vapor Density [air =1]:** 60-90° F: >1	**Evaporation Rate:** No Data.
Odor: glycol	**Vapor Pressure:** 0.06 @ 20C (68F)	**Specific Gravity:** 1.1 @20C/4C
Boiling Point: 163°C/325°F	**Solubility in Water:** Miscible in water.	**pH (concentrate):** 10 +/- 0.5

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable under ordinary conditions of use and storage.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizing agents. Reacts violently with chlorosulfonic acid, oleum, sulfuric acid, perchloric acid. Causes ignition at room temperature with chromium trioxide, potassium permanganate and sodium peroxide; causes ignition at 212F(100C) with ammonium dichromate, silver chlorate, sodium chloride and uranyl nitrate.

Reactive Conditions to avoid: Heat, flames, ignition sources, water (absorbs readily) and incompatibles.

Decomposition Products: Carbon dioxide and carbon monoxide may form when heated to decomposition. May produce acrid smoke and irritating fumes when heated to decomposition.

SECTION 11 – TOXICOLOGICAL INFORMATION

Hazardous Ingredients	CAS #	EINECS #	LD 50 of Ingredient (Specify Species)	LC50 of Ingredient (Specify Species)
Ethylene glycol			Oral rat LD50: 4700 mg/kg; skin rabbit LD50: 9530 mg/kg.	Irritation - skin rabbit: 555mg(open), mild; eye rabbit: 500mg/24H, mild.
			Investigated as a tumorigen, mutagen, reproductive effector.	Has shown teratogenic effects in laboratory animals.

SECTION 12 – ECOLOGICAL INFORMATION

Hazardous Ingredients	Aquatic Toxicity Data
The LC50/96-hour values for fish are over 100 mg/l.	When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is not expected to
	evaporate significantly. When released into water, this material is expected to readily biodegrade. When released into the water, this material is expected to have a half-life between 1 and 10 days. This material is not
	expected to significantly bioaccumulate. This material has a log octanol-water partition coefficient of less than 3.0. When released into water, this material is not expected to evaporate significantly. When released into the
	air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal: 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 – TRANSPORTATION INFORMATION

Special Shipping Information: Not regulated.

Purview	Proper Shipping Name	UN Number	Packing Group	Hazard Class
DOT (Land)	Not regulated.			
IMO (Water)	No Data.			
ICAO (Air)	No Data.			

SECTION 15 – REGULATORY INFORMATION

WHMIS Classification: (Workplace Hazardous Material Information System)	This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.
SARA Title III: (Superfund Amendments & Reauthorization Act)	Section 311/312 Hazard Class - 40 CFR 370.2 Immediate Y / Delayed Y / Fire N / Reactive N / Sudden Release of Pressure N SARA 313 Components - 40 CFR 372.65 Section 313 Component(s) CAS Number % ETHYLENE GLYCOL 107-21-1 100.00
OSHA: (Occupational Safety & Health Administration)	No Data.
TSCA: (Toxic Substance Control Act)	TSCA (Toxic Substances Control Act) Status TSCA (UNITED STATES) The intentional ingredients of this product are listed.
VOC: (volatile Organic Compounds)	No Data.
CPR: (Canadian Controlled Products Regulations)	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations.
EINECS: (European Inventory of Existing Commercial Chemical Substances)	No Data.
DSL / NDSL: (Canadian Domestic Substance List)(Non-Domestic Substance List)	No Data.
CERCLA: (Comprehensive Response Compensation & Liability Act)	Component RQ (lbs) ETHYLENE GLYCOL 5000
IDL: (Canadian Ingredient Disclosure List)	No Data.
NFPA (HMIS) Rating: (Hazardous Materials Identification System)	Health Hazard 1 Fire Hazard 1 Reactivity 0 Personal Protection X

SECTION 16 – OTHER INFORMATION

International Regulations Inventory Status : Not determined
State and Local Regulations California Proposition 65 : None
New Jersey RTK Label Information ETHYLENE GLYCOL 107-21-1
Pennsylvania RTK Label Information 1,2-ETHANEDIOL 107-21-1

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