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Material Safety Data Sheet

1. Product and company identification

Product name	**BETTER DRIVE Antifreeze liquid**
Manufacturer	Samato Kft.
Address	H-7960 Sellye Malom str. 1.
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Homepage	http://www.samato.hu

2. Hazards 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.** **Symbols of hazards**:  **X_n**

Potential Health Effects

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.
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)
Skin Contact **Eye Contact**	Minor skin irritation and penetration may occur Splashes may cause irritation, pain, eye damage
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.
Aggravation of Pre-existing Conditions	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.

3. Composition

	CAS number	EINCS	Symbol	R- phrases
Ethylene Glycol >30% Synonyms: 1,2-Ethanediol, $HOCH_2CH_2OH$	107-21-1	203-473-3	X_n	22
Reference no. pre-registration 05-211459956-24-0000				

4. First aid	
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.
Skin contact	In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
Notes to Physician	Treat symptomatically and supportively. Administration of Sodium bicarbonate may be of value to treat acidosis.
5. Fire fighting measures	
General information	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Suitable 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.
Special Information	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..
6. Accidental spill measures	
Personal precautions	Avoid direct contact with the product. Wear appropriate protective clothing, rubber gloves, rubber boots and face shield. Avoid the sources of ignition, do not smoke..
Environmental precautions	Surround the spill with earth or sand. Collect the spilled materials in suitable containers. If necessary absorb the spill onto inert materials. Dispose of material according to the requirements of local laws. In case of leaking into sewer inform the local officials.
Methods for cleaning up	Wash the contaminated area with plenty of water.

7. Handling and storage
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.

8. Exposure controls / Personal protection		
Exposure Limits (ethylene glycol)	**Ministero della Salute (Italy, 3/2004). Skin** STEL: 104 mg/m3 15 minute(s). Form: All forms STEL: 40 ppm 15 minute(s). Form: All forms TWA: 52 mg/m3 8 hour(s). Form: All forms TWA: 20 ppm 8 hour(s). Form: All forms	**INSHT (Spain, 1/2004). Skin** VLA-EC: 104 mg/m3 15 minute(s). Form: All forms VLA-EC: 40 ppm 15 minute(s). Form: All forms VLA-ED: 52 mg/m3 8 hour(s). Form: All forms VLA-ED: 20 ppm 8 hour(s). Form: All forms
	EH40-OES (United Kingdom (UK), 5/2003). Skin STEL: 104 mg/m3 15 minute(s). Form: Vapor TWA: 10 mg/m3 8 hour(s). Form: Particulate TWA: 52 mg/m3 8 hour(s). Form: Vapor	**TRGS900 MAK (Germany, 8/2004). Skin** Spitzenbegrenzung: 26 mg/m3 Form: All forms Spitzenbegrenzung: 10 ppm Form: All forms TWA: 26 mg/m3 8 hour(s). Form: All forms TWA: 10 ppm 8 hour(s). Form: All forms
Personal protective equipment	When handling the product, wear approved protective clothing, rubber or PVC gloves and a face shield	

9. Physical and chemical properties	
Appearance at 20 °C	Blue or green colored liquid.
Odor	Characteristic
Boiling Point	156 °C
Vapor Pressure at 20 °C	0.05 mm Hg
Density: (20 Celsius)	1,12- 1,145 g/cm^3
pH.: Aqueous solution – 25/100 ml	7 - 9
Autoignition Temperature	410 °C
Solubility in water	Soluble

10. Stability and reactivity	
Stability	Stable under ordinary conditions of use and storage
Hazardous Decomposition Products	Carbon dioxide and carbon monoxide may form when heated to decomposition. May produce acrid smoke and irritating fumes when heated to decomposition
Hazardous Polymerization	Will not occur.
Conditions to Avoid	Heat, flames, ignition sources, water (absorbs readily) and incompatibles
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 100 °C with ammonium dichromate, silver chlorate, sodium chloride and uranyl nitrate.

11. Toxicological information	
RTECS#:	CAS# 107-21-1: KW2975000
LD50/LC50	Draize test, rabbit, eye: 500 mg/24H Mild;

	Draize test, rabbit, eye: 100 mg/1H Mild; Draize test, rabbit, eye: 0.012 ppm/3D; Draize test, rabbit, eye: 1440 mg/6H Moderate; Oral, mouse: LD50 = 5500 mg/kg; Oral, rat: LD50 = 4700 mg/kg; Skin, rabbit: LD50 = 9530 uL/kg; Other: Ethylene glycol is more acutely toxic for humans than for laboratory animals by ingestion. The single oral lethal dose for humans has been estimated at 1.4 ml/kg (1.56 g/kg) or about 100 ml (111 g) for an adult.
Carcinogenicity	Ethylene glycol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

12. Ecological information

Environmental Fate	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
Ecotoxicity	Fish: Rainbow trout: LC50 = 41000 mg/L; 96 Hr.; Unspecified Fish: Bluegill/Sunfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified Fish: Goldfish: LC50 = 27500-41000 mg/L; 96 Hr.; Unspecified Water flea Phytobacterium phosphoreum: LC50 = 46300 mg/L; 48 Hr.; Unspecified

13. Disposal consideration

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.

14. Transport information

Product is not dangerous for road, air and rail transport.

15. Regulatory information

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Symbols of hazards:  X_n

Classification and labelling (Directive 67/548/EC and following amendments)

Risk phrases:	**R 22**	Harmful if swallowed
Safety advices	**S ½** **S 46**	Keep locked up and out of reach of children If swallowed, seek medical advice immediately and show this container or label.

16. Other

The information contained in this MSD sheet is based on the available knowledge at the time of compilation. This information was obtained from tests conducted by or for Samato or extracted from the literature and is relative to the safety perscriptions and correct use of the product. Samato assumes no responsibility for applications that are incorrect or improper or not in accordance with the information reported above.
For any application outside normal foreseen it is advisable to ask information from Samato kft.The data provided herein do not constitute specifications of quality. This MSDS cancels and replaces any preceding release.

Sághi Péter
Samato Kft.