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SAFETY DATA SHEET (Material Safety Data Sheet)

06 January 2020

A.T.S. Electro-Lube Automatic Lubricant Dispenser

ATS Type 1 Electro-Lyte

SECTION 1

IDENTIFICATION of PRODUCT and SUPPLIER

ATS Type 1 Electro-Lyte

Product name

ATS Type 1 Electro-Lyte

Micro-Luber (A.T.S. Electro-Lube international Inc.)

Mini-Luber (A.T.S. Electro-Lube international Inc.)

Budget-Luber (A.T.S. Electro-Lube international Inc.)

Jumbo-Luber (A.T.S. Electro-Lube international Inc.)

Intended use of product

This Safety Data Sheet is for the liquid ATS Type 1 Electro-Lyte.

The ATS Type 1 Electro-Lyte is a mixture of chemicals sealed inside A.T.S. Electro-Lube gas driven lubricant dispensers. In operation of the dispensers nitrogen gas is generated from the Electro-Lyte by an electrolysis reaction activated by switches in series with two 1.5 Volt alkaline batteries. In the event of puncture, overheating or tampering with the A.T.S. Electro-Lube unit, up to a few milliliters of the liquid ATS Type 1 Electro-Lyte may leak into the surroundings.

This Safety Data Sheet applies also in the A.T.S. Electro-Lube production facility where the ATS Type 1 Electro-Lyte is prepared and stored in bulk, and loaded into the A.T.S. lubers.

Restrictions on use of product

The ATS Type-1 Electro-Lyte should be used for no purpose other than the intended use described above.

Manufacturer

A.T.S. Electro-Lube International Incorporated

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<u>SECTION 3</u>		COMPOSITION		Proprietary mixture	ATS Type 1 Electro-Lyte	
Component Chemical name	CAS No.	Common name	Synonyms	Concentration wt%	LD ₅₀ Oral mg/kg	Species
Sodium trinitride	26628-22-8	Smite, Azium	Sodium azide	17	27	Rat
Potassium thiocyanate	333-20-0	Rodanca	Potassium rhodanide	7	854	Rat
Methane 1,1' sulphanyl bis	67-68-5	DMSO	Dimethyl sulphoxide	NS	14500	Rat
Potassium monoiodide	7681-11-0	Potide, Antistrumin	Potassium iodide	NS	4000	Rat
1,2 Ethanediol	107-21-1	Antifreeze	Ethylene glycol	NS	4700	Rat
2,2' Oxydiethanol	111-46-6	Diglycol	Diethylene glycol	NS	12565	Rat
Dihydrogen monoxide	7732-18-5	Water	Hydrol	NR	NR	NA
Mixture ATE	-	-	-	-	64	Rat

NS = Not specified. These ingredients have acute toxicity in or above the range of GHS Category 5 and may present a danger to vulnerable populations in some circumstances.

ATE = Acute toxicity, NA = Not applicable, NR = Not regulated

Total mass of ATS Type 1 Electro-Lyte per gas driven Electro-Lube unit.

Micro-Luber=13 gram. Mini-Luber=13 gram. Budget-Luber=27 gram. Jumbo-Luber=40 gram

<u>SECTION 4</u>	FIRST-AID MEASURES	ATS Type 1 Electro-Lyte
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Show this safety data sheet to medical personnel in attendance.

Most important symptoms/effects acute and delayed

Irritant effects, cough, headache, bloodshot eyes, nausea, vomiting, dizziness, convulsions, shortness of breath, CNS disorders, kidney damage, circulatory collapse, collapse, unconsciousness.

Treatment

Eye Contact

Irrigate with water for at least 15 minutes. Get medical aid.

Remove contact lenses and continue irrigation with water for 15 minutes.

Skin Contact

Wash thoroughly with water, then with soap and water. Get medical aid.

Remove contaminated clothing. Wash clothing before re-use.

Inhalation

Remove to fresh air. If victim is unconscious give artificial respiration. Get medical aid.

Ingestion

Get medical aid immediately. Call a poison centre.

Do not give anything by mouth to an unconscious person.

If victim is conscious, rinse the mouth with water.

First-aid responders

Personal protective equipment is recommended.

Symptoms

Eye contact

Irritation, bloodshot eyes, blurred vision.

Skin contact

Irritation. Absorption through skin cause azide poisoning, which typically begins with bloodshot eyes, then leads progressively to headache, dizziness, nausea and collapse.

Inhalation

Vapour or mist may irritate respiratory tract. Continuous inhalation of vapour over several hours gives mild symptoms of azide poisoning. Inhalation of mist could have severe effects similar to ingestion.

Ingestion

Immediate effects of azide poisoning:

Chronic effects Headache, nausea, vomiting, convulsion, collapse.
Repeated small exposures to ATS Type 1 Electro-Lyte may have the chronic effects of its components, including dermatitis, headache, weakness, confusion and kidney problems.

Indication of immediate medical attention and special treatment needed

If swallowed call a poison centre and get immediate medical attention.
Patients/victims should be monitored for pulmonary edema, hypotension, shock, seizure, acidosis and kidney damage, then treated as necessary.

SECTION 5

FIRE-FIGHTING MEASURES

ATS Type 1 Electro-Lyte

Extinguishing media Dry chemical or Class D.

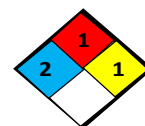
Unsuitable extinguishing media Water, standard foam, carbon dioxide.

Under combustion conditions water may react with sodium azide to produce explosive hydrogen and/or toxic hydrogen azide gas.

Specific hazards

Temperature above 60 °C below ca. 150 °C – slow decomposition to nitrogen.
Temperature above 150 °C - evaporation of water, dimethyl sulphoxide and ethylene glycol, then rapid smooth decomposition of dry material to give toxic fumes.

Oxidative decomposition (burning) above 150 °C gives sulphur dioxide, nitrogen oxide, formaldehyde, methyl mercaptan, carbon monoxide, hydrogen cyanide, hydrogen iodide, sodium oxide and potassium oxide.



Special protective equipment and precautions for fire fighters

In event of fire [sustained by external source] wear full protective clothing and NIOSH or EN approved self-contained breathing apparatus.

SECTION 6

ACCIDENTAL RELEASE MEASURES

ATS Type 1 Electro-Lyte

Personal precautions, protective equipment and emergency procedures

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Eyes Chemical safety goggles or full face shield.

Skin Apron or coveralls, gloves - nitrile rubber, chemical-resistant foot-ware.

Respiration An air-purifying chemical cartridge respirator is adequate for most conditions.

Maintain good ventilation.

CAUTION. *In the event of acidification of the ATS Type 1 Electro-Lyte* a NIOSH or EN approved self-contained breathing apparatus is required to prevent poisoning by hydrogen azide gas [TLV = 0.1 ppm(vol)].

In case of temperature above 100 °C [e.g. in a fire] see SECTIONS 5 and 10.

Environmental precautions Avoid discharge into drains, surface and ground water.

Methods and materials for containment and cleaning up

- Wear appropriate protective equipment [see above].
- Use only non-metallic containers. Avoid contact with acids and with metals.
- Absorb in non-combustible porous medium [e.g. Vermiculite] with a mild alkali e.g. sodium bicarbonate or carbonate [i.e. baking or washing soda].
- Dispose of absorbed material as a hazardous waste, according to local regulations.

SECTION 7

HANDLING AND STORAGE

A.T.S. Electro-Lube units

Handling precautions. Do not puncture or tamper with the ATS luber units.

In the event of a leak of the ATS Type 1 Electro-Lyte gel or liquid:

- Wear protective clothing (gloves, coveralls, goggles).
- Avoid personal contact with the Electro-Lyte.
- Avoid contact of the Electro-Lyte with acids, heavy metals and their salts.
- Absorb into a non-combustible material with a mild alkali (e.g. baking soda).
- Dispose as a hazardous waste.
- Do not eat, drink or smoke in work areas.
- Wash hands after use.
- Remove contaminated clothing and protective equipment before entering eating areas.

Storage and incompatibilities.

- Store the ATS luber units in general warehouse at temperature below 40 °C.
- Store away from acids and heavy metal (copper, gold, lead, mercury, silver) salts, in case of breakage and contamination of the ATS Type 1 Electro-Lyte.
- Avoid storage with incompatible substances such as those listed in Section 10.

Special handling precautions for A.T.S. Electro-Lube units None.

SECTION 8

EXPOSURE CONTROLS/PERSONAL PROTECTION

ATS Type 1 Electro-Lyte

In its intended use the A.T.S. Electro-Lube unit does not need special exposure controls. *Puncture, overheating or tampering with the unit may release up to a few millilitres of ATS Type 1 Electro-Lyte*, with the following control parameters and protective measures.

Control parameters.

Threshold limit and biological limit values of the toxic components.

Component	CAS No.	TLV (mg/m ³)	LD ₅₀ (mg/kg)
Sodium azide	26628-22-8	0.29	27
Potassium thiocyanate	333-20-0	11	854
Total Mixture (ATE)			64

Engineering controls.	Maintain good ventilation (e.g. 10 turnovers/hour). Avoid formation of mist or dust.
Personal protection.	Avoid contact with skin and eyes and breathing vapours.
Eyes.	Chemical safety goggles or full face shield.
Skin.	Apron or coveralls, gloves - nitrile rubber, chemical-resistant foot-ware.
Respiration.	An air-purifying chemical cartridge respirator is adequate for most conditions. CAUTION. In the event of acidification of the ATS Type 1 Electro-Lyte a NIOSH or EN approved self-contained breathing apparatus is required to prevent poisoning by toxic hydrogen azide gas [TLV = 0.1 ppm(vol)]. In case of temperature above 100 °C [e.g. a fire] see SECTIONS 5 and 10.

<u>SECTION 9</u>	PHYSICAL AND CHEMICAL PROPERTIES	ATS Type 1 Electro-Lyte
Appearance	Clear, greenish liquid.	
Odour	Faint sulphur smell	
Odour threshold	NA	
pH	9 @ 20 °C	
Melting point/Freezing point	-35 °C (approx).	
Initial boiling point	104 °C @ 101 kPa(abs)	
Boiling range	104 to 200 °C @ 101 kPa(abs)	
Flash point	Above 85 °C	
Flammability	Not flammable	
Explosion limits	Not applicable	
Vapour pressure	2 kPa @ 20 °C	
Vapour relative density	2 (Air = 1)	
Liquid specific gravity	1.14 (Water = 1)	
Volatiles	80 volume %	
Solubility in water	Infinite	
Evaporation rate	As for water (approximate)	
Partition coefficient (octanol/water)	$\log(K_{ow}) = -2$ @ 20 °C (approximate)	
Auto-ignition temperature	Not applicable	
Decomposition temperature	150 °C (approximate)	
Viscosity	10 cP @ 20 °C (approximate)	

<u>SECTION 10</u>	STABILITY AND REACTIVITY	ATS Type 1 Electro-Lyte
Reactivity	Reacts with acids to form toxic hydrogen azide gas (TLV = 0.1 ppmV). Reacts with heavy metals (e.g. Cu,Pb,Hg,Ag,Au) as well as their alloys (e.g. brass) and rapidly with their salts to form explosive metal azides. Reacts with strong oxidants, hypochlorites, chlorinated solvents, carbon disulphide, acyl/aryl halides and metal alkoxides.	

Chemical stability.	Stable under normal ambient conditions.		
Hazardous reactions.	Reacts with acids to form toxic hydrogen azide gas (TLV = 0.1 ppmV). Hydrogen azide is rapidly released at pH below about 5 at 20 °C. Reacts slowly with heavy metals (e.g. Cu,Pb,Hg,Ag,Au) as well as their alloys (e.g. brass) and rapidly with their salts at 20 °C to form explosive metal azides. Reaction with strong oxidants may produce violent gas evolution. Reactions with hypochlorites, chlorinated solvents, carbon disulphide, acyl/aryl halides and metal alkoxides can produce dangerously unstable products.		
Conditions to avoid.	Temperatures above 100 °C Contact with acids. Contamination by heavy metals (e.g. Cu,Pb,Hg,Ag,Au) or their salts. Contact with strong oxidants, hypochlorites, chlorinated solvents, carbon disulphide, acyl/aryl halides and metal alkoxides.		
Incompatible materials.	Acids, heavy metals (e.g. Cu,Pb,Hg,Ag,Au) their alloys and compounds, strong oxidants, chlorinated solvents, carbon disulphide, acyl/aryl halides and metal alkoxides.		
Hazardous decomposition products	Oxidative decomposition above about 150 °C gives sulphur dioxide, nitrogen oxide, formaldehyde, methyl mercaptan, carbon monoxide, hydrogen cyanide, hydrogen iodide, sodium and potassium oxides.		
Hazardous polymerization products	None		
Sensitivity to impact	None	Sensitivity to static	None
Rate of burning	None	Explosive power	None

SECTION 11**TOXOLOGICAL INFORMATION****ATS Type 1 Electro-Lyte**

The ATS Type 1 Electro-Lyte is absorbed in a sponge which is enclosed in a sealed unit. *Puncture, overheating or tampering with the unit* presents the following health hazards from gel or liquid ATS Type 1 Electro-Lyte. This toxicological information applies to the components of the mixture for which data are available.

Exposure Effects.

Acute toxicity	GHS Category 3. Acute toxicity estimate of mixture (ATE): LD ₅₀ = 64 mg/kg
Skin irritation	Sodium azide, potassium iodide, ethylene glycol. May cause skin irritation.
Eye damage	Causes eye irritation.
Respiratory/skin sensitization	Irritating to skin and upper respiratory tract. Liquid mixture is easily absorbed through the skin. Prolonged or repeated exposure may cause allergic reactions.
Carcinogenicity	IARC. No component of this product present at levels greater than or equal to 0.1 wt% is identified as a probable, possible or confirmed human carcinogen.

SECTION 16 OTHER INFORMATION**Prepared by:****Name** Colin Oloman**Signature****Title** Professor Emeritus of Chemical Engineering
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Consultant to A.T.S. Electro-Lube International Inc.**Telephone** 604-946-1308**Date** 06 January 2020**Sources used**

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CAS = Chemical Abstract Service number. **NA** = Not Applicable. **NE** = Not Established. **NS** = Not Specified.

TLV = Threshold Limit Value. **LD₅₀** = Lethal Dose, causing death of 50% of population. **LC₅₀** = Lethal Concentration, causing death of 50% of population. **EC₅₀** = Half maximal Effective Concentration.

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