1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **Silwet L-77® surfactant**

Chemical name: Polyalkyleneoxide Modified Heptamethyltrisiloxane

Supplier:
GE Silicones
3500 South State Route 2
Friendly, WV 26146, USA

Contact numbers:

CHEMTREC (24 hours):	800-424-9300
GE Silicones Emergency Response (24 hours):	800-809-9998
GE Silicones Emergency Response (24 hours):	304-926-8418
For Product Safety Inquiries:	304-652-8446
For MSDS only:	304-652-8155
Customer Service:	800-523-5862

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS#	CONCENTRATION
Polyalkyleneoxide modified Heptamethyltrisiloxane	27306-78-1	84.0 %
Allyloxypolyethyleneglycol methyl ether	27252-80-8	16.0 %

Note(s): See Section 15 for chemicals appearing on Federal or State Right-To-Know lists.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING!

AEROSOL HARMFUL IF INHALED.
CAUSES EYE IRRITATION.
VAPOR MAY CAUSE BLURRING OF VISION.
REPEATED INGESTION MAY CAUSE DAMAGE TO THE LIVER, KIDNEYS, THYROID, MALE AND FEMALE REPRODUCTIVE SYSTEM, AND BLOOD-FORMING SYSTEM.
REPEATED INHALATION OF AEROSOL OF THE NEAT LIQUID MAY CAUSE DAMAGE TO THE EYES, BLOOD-FORMING SYSTEM, KIDNEYS, THYMUS, RESPIRATORY TRACT, AND NASAL CAVITY.

4. FIRST AID MEASURES

Swallowing
If patient is fully conscious, give two glasses of water. Obtain medical attention immediately.

Skin
Wash skin with soap and water. Obtain medical attention if irritation persists.

Inhalation
Remove to fresh air if aerosol spray is inhaled. If breathing is difficult, administer oxygen. Obtain medical attention immediately.

Eye contact
Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention immediately.

Notes to physician
Severe eye irritant. There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Flash point: 116 °C (240 °F)

Flammable limits

Lower limit:	Not available
Upper limit:	Not available

Special fire fighting procedures
Do not direct a solid stream of water or foam into hot, burning pools: this may cause frothing and increase fire intensity.

Special protective equipment for firefighters
Self-contained breathing apparatus. Body covering protective clothing.

Extinguishing media
Suitable: Large fires:
- alcohol-type foam or universal-type foams

Small fires:
- CO_2
- dry chemical

Unsuitable: None.

Unusual fire and explosion hazards
None known.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid contact with liquid and vapors. Wear suitable protective equipment.

Environmental precautions
Avoid discharge to sewers or natural waters.

Methods for cleaning up
Cover with absorbent or contain.

Collect for disposal.
Observe government regulations.

7. HANDLING AND STORAGE

HANDLING

Handling precautions
Do not get in eyes, on skin, on clothing. Avoid breathing vapor, aerosol and mist. Use with adequate ventilation. Wash thoroughly after handling.

Other precautions
Consult the manufacturer before using an aerosol of the neat liquid.

STORAGE

Storage requirements
Keep away from heat and flame. Keep container closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTION

Respiratory protection
None expected to be needed when using an aqueous spray. Consult the manufacturer for appropriate protection before using an aerosol of the neat liquid.

Hand protection / protective gloves
Recommended order of use:
4H
Butyl
Neoprene
Nitrile (NBR)
PVC-coated

Eye protection
Monogoggles

Skin protection
Chemical protective clothing.

Other protective equipment
Eye bath
Safety shower

ENGINEERING CONTROLS

Ventilation
General mechanical room ventilation is satisfactory for normal handling and storage operations.
Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.

EXPOSURE LIMITS

No exposure limits have been established

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Physical state	Liquid
Color	Straw-colored
Odor	Moderate polyether

OTHER PROPERTIES

Boiling point	> 150 °C at STP unless specified below. Copolymer
Melting point	-1 °C at STP unless specified below.
pH	Not available
Specific gravity (H2O=1)	1.0070 at 25 °C (1,013 hPa)
Vapor pressure	< 1.33 hPa (1.00 mmHg) at 20 °C
Vapor density (air=1)	Heavier than air
Solubility in water	Dispersible
Evaporation rate (Butyl Acetate=1)	< 1
Flash point	116 °C (240 °F) Method: Pensky-Martens closed cup ASTM D 93
Upper explosion limits	Not available
Lower explosion limits	Not available
Percent volatiles	Not determined
Molecular weight	Polymer

10. STABILITY AND REACTIVITY

Stability: Stable.

Stability - Conditions to avoid
None known.

Incompatible materials
None currently known.

Hazardous combustion products
Burning can produce the following combustion products:
Oxides of carbon.

Oxides of silicon.
Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.
Acute overexposure to the products of combustion may result in irritation of the respiratory tract.

Hazardous polymerization: Will not occur.

Hazardous polymerization - Conditions to avoid
None known.

11. TOXICOLOGICAL INFORMATION

SWALLOWING
Acute effects
No evidence of harmful effects from available information.

Effects of repeated overexposure
Ingestion may cause:
- injury to the liver
- injury to the thyroid
- injury to the kidney
- injury to the bloodforming system
- injury to the male and female reproductive systems

Test results

Acute toxicity:	LD50 - Rat
	Result: > 2,000 mg/kg
	Remark: Very low order of toxicity

SKIN ABSORPTION
Acute effects
No evidence of harmful effects from available information.

Effects of repeated overexposure
May cause the following effects:
- skin irritation

Test results

Acute toxicity:	LD50 - Rat
	Result: > 2,000 mg/kg
	Remark: Very low order of toxicity

INHALATION
Acute effects
Harmful effects are not expected from static vapor at ambient temperature. Inhalation of an aerosol of the neat material within a confined space could result in respiratory distress and eye injury.

Effects of repeated overexposure
Aerosol may cause:
- damage to respiratory tract
- injury to the eyes
- injury to the nasal cavity

- injury to the bloodforming system

Test results

Acute toxicity: LC50 - Rat
Result: 2 mg/l
Exposure time: 4 h
Remark: Aerosol

Test results

Acute toxicity: LC50 - Rat
Result: > 11.78 mg/l
Exposure time: 4 h
Remark: 5% Diluted aqueous solution of L-77 Aerosol

SKIN CONTACT

Acute effects

No evidence of harmful effects from available information.

Test results

Skin irritation: Species: Rabbit
Result: No irritation

EYE CONTACT

Acute effects

Liquid splashed into the eye causes discomfort.
May cause the following effects:
- pain
- excess blinking
- tear production
- excess redness of the conjunctivae
- swelling of the conjunctivae
- iridal inflammation

These effects should resolve within two weeks.
Corneal injury may occur.
Prolonged exposure to vapor or aerosol may cause discomfort.
May cause the following effects:
- excess redness of the conjunctivae
- possibly swelling of the conjunctivae
- blurring of vision

These effects will resolve within a few hours.

Test results

Eye irritation: Species: Rabbit
Result: Severe irritation

Medical conditions aggravated by overexposure

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.

Other effects of overexposure

No adverse effects anticipated from available information.

SENSITIZATION

Test results: Species: - Guinea pigs
Result: did not produce sensitization

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH

This material was not mutagenic in an Ames bacterial assay or in three mammalian test systems including the Chinese hamster ovary (CHO)/HGPRT gene mutation assay, a micronucleus cytogenetic assay in mice, and an in vitro mammalian cytogenetic test.
In a repeated skin application study with rats, this material caused moderate skin irritation which resolved during a post-application recovery period. There was no evidence for percutaneous cumulative or specific organ toxicity, and no effect on male or female reproductive systems.
Findings from a 14-day dietary feeding study with rats show that high dosage repeated ingestion of this material causes reversible adverse effects on the male and female reproductive tracts. Additional effects seen include increased liver weight, altered blood cytology/chemistry, and thyroid enlargement (primarily hypertrophy, with some hyperplasia). Evidence of partial or complete recovery was found over a 28-day recovery period.
Findings from a repeat 9-day aerosol inhalation toxicity study with rats show a no-observable-effect-level (NOEL) of less than 0.025 mg/l. Symptoms of toxicity included rales, gasping, ocular opacity, prostration, hypothermia, reduced body weight gain and food consumption, changes in clinical pathology, decreased thymus weight, and microscopic lesions in the nasal cavity. There was no effect on the male or female reproductive systems. It is not anticipated that the use of aqueous dilutions of this product would result in this type of aerosol exposure.

12. ECOLOGICAL INFORMATION

This product is expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Biodegradation: Remark: Not readily biodegradable.

AQUATIC TOXICITY

Acute toxicity fish: - LC50 - Zebra fish
Result: 2.75 mg/l
Exposure time: 96 h
Remark: Endpoint: Lethality

Acute toxicity fish: - NOEC - Zebra fish
Result: 0.56 mg/l
Exposure time: 96 h

Aquatic toxicity to plants: - EC50 - Green alga
Result: 5.5 mg/l
Inhibition of growth
Exposure time: 96 h

Aquatic toxicity to plants: - NOEC - Green alga
Result: 1 mg/l
Exposure time: 96 h

Microorganisms: - MEC90 - Spirillum volutans

Result: > 200 uL/L
Exposure time: 120 min
Remark: (highest concentration tested)
Uncoordinated mobility in 90% of the population

Acute toxicity to aquatic invertebrates: - EC50 - Daphnia similis
Result: 22.61 mg/l
Exposure time: 48 h
Remark: Endpoint: Immobilization

Acute toxicity to aquatic invertebrates: - NOEC - Daphnia similis
Result: 10 mg/l
Exposure time: 48 h

13. DISPOSAL CONSIDERATIONS

General: Incinerate in a furnace where permitted under appropriate Federal, State, and local regulations.

14. TRANSPORT INFORMATION

DOT Classification

Not regulated by ground or rail if shipped or transported in containers less than 450 liters.

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Polyalkyleneoxide Modified Heptamethyltrisiloxane)
Class: 9
UN ID #: UN 3082
Packing group: III
Freight description road: OIL, O/T PETROLEUM, LUBRICATING, NOIBN

IMDG Classification

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Polyalkyleneoxide Modified Heptamethyltrisiloxane)
Class: 9
UN ID #: UN 3082
Packing group: III

ICAO Classification

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Polyalkyleneoxide Modified Heptamethyltrisiloxane)
Class: 9
UN ID #: UN 3082
Packing group: III

15. REGULATORY INFORMATION

Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of hazardous substances equal to or greater than the reportable quantities (RQ's) in 40CFR302.4.

Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40CFR355 (used for SARA 302 and 304).
Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40CFR372 (for SARA 313). This information must be included in MSDS's that are copied and distributed for this material.
Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

Massachusetts Right-To-Know Substance List (MSL)--Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products.
Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

Pennsylvania Right-To-Know Hazardous Substance List--Hazardous Substances and Special Hazardous Substances on the list must be identified when present in products.
Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

EPA Hazard Categories (SARA 311, 312): Immediate Health Hazard, Delayed Health Hazard

California Proposition 65
This product contains no levels of listed substances, which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute.

California SCAQMD Rule 443.1 VOC's
Volatile Organic Components (VOC's) = Substances with vapor pressure of => 0.5 mmHg at 104'C (219.2'F).
This product contains 29.8 g/liter VOC's.

CHEMICAL INVENTORY

Canada:	The ingredients of this product are on the DSL.
Europe:	The ingredients of this mixture are on the EINECS inventory.
United States:	The components of this product are listed on the TSCA inventory or are exempt.
Australia:	This product, or the components, is listed or exempt from listing on the Australian Inventory of Chemical Substances (AICS).
Japan:	This product, or the components, is listed or exempt from listing on the Existing and New Chemical Substances (ENCS) list.
Korea:	The components of this product are listed on the Existing Chemicals List (ECL).
Philippines:	This product, or the components, is listed or exempt from listing on the Philippines Inventory of Chemicals and Chemical Substances (PICCS).

16. OTHER INFORMATION

RECOMMENDED USES AND RESTRICTIONS
Please consult the product and/or application information bulletins for this product.

HMIS RATING

Health: 2	Flammability: 1	Reactivity: 0	PPI: X

LEGEND

STP	Standard temperature and pressure
W/W	Weight/Weight
0 (HMIS)	Minimal hazard
1 (HMIS)	Slight hazard
2 (HMIS)	Moderate hazard
3 (HMIS)	Serious hazard
4 (HMIS)	Severe hazard
X (HMIS)	Personal protection rating to be supplied by user depending on use conditions

The opinions expressed herein are those of qualified experts within GE Silicones. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and of these opinions and the conditions of use of this product are not within the control of GE Silicones, it is the user's obligation to determine the conditions of safe use of the products.