***Clean Flush* Antifreeze**
CFA-002

1. PRODUCT AND COMPANY IDENTIFICATION

Aircraft Technologies, Inc.
3650 Highpoint St.
San Antonio, TX 78217

Transport North America CHEMTREC 1-800-424-9300

Emergency Telephone Number 1-855-639-3648

Product Name: PROPYLENE GLYCOL (CLEAN FLUSH ANTIFREEZE)

Product Code: CFA-002
Product Use Description: Aircraft Toilet Antifreeze Additive

2. HAZARDS IDENTIFICATION

GHS Classification
Not a hazardous substance or mixture.
GHS Label Element
Not a hazardous substance or mixture.
Potential health Effects

Carcinogenicity:

IARC
No component of this product present at levels greater than or equal to 0.1% is identified as *probable, possible or confirmed human carcinogen* by IARC.

ACGIH
No component of this product present at levels greater than or equal to 0.1% is identified as *probable, possible or confirmed human carcinogen* by ACGIH.

OSHA
No component of this product present at levels greater than or equal to 0.1% is identified as *probable, possible or confirmed human carcinogen* by OSHA

NTP	No component of this product present at levels greater than or equal to 0.1% is identified as *probable, possible or confirmed human carcinogen* by NTP.
Emergency Overview	
Appearance	Liquid
Color	Colorless
Odor	Odorless
Hazard Summary	No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS No.	Concentration
PROPYLENE GLYCOL	57-55-6	75%

4. FIRST AID MEASURES

General Advice:	Do not leave the victim unattended.
If inhaled:	If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact:	If on skin, rinse well with water. If on clothes , remove clothes.
In case of eye contact:	Remove contact lenses. Protect unharmed eye. If eye irritation persists, consult a specialist.
If swallowed:	Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical, Carbon Dioxide (CO_2), Alcohol resistant foam, Water spray.

Hazardous Combustion Products

Carbon Dioxide and Carbon Monoxide

Precautions for Fire-Fighting

Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase the fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Methods for Cleaning Up

Soak up with inert absorbent material (e.g., sand, silica gel, acid binder, universal binder or sawdust) Keep in suitable, closed containers for disposal.

Other Information

Comply with all applicable federal, state and local regulations

7. HANDLING AND STORAGE

Advice on Safe Handling

For personal protection see Section 8. Smoking, eating and drinking should be prohibited in the application area.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Components with workplace control parameters

PROPYLENE GLYCOL	**CAS 57-55-6**
Value type (Form of exposure)	TWA
Control parameters/Permissible concentration	10 mg/m³
Basis	US WEEL

General Advice

Use general industrial hygiene practices.

Skin and Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Respiratory Protection

No personal respiratory protection equipment is normally required.

Eye Protection

Wear safety glasses.

9. PHYSICAL AND CHMICAL PROPERTIES

Physical State	Liquid
Color	Colorless
Odor	Odorless
Boiling point/boiling range	369.2°F/187.3°C
Melting point/range	10°F/-12°C see user defined free text
Sublimation point	no data available
pH	no data available
Flash point	209.9°F/98.8°C Closed cup
Ignition temperature	no data available
Evaporation rate	(<)0.01 n-Butyl Acetate
Lower explosion limit/Upper explosion limit	2.6%(V)/12.6%(V)
Particle size	no data available
Vapor pressure	0.017 kPa@68°F/20°C

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Freezing Point (Melting point/freezing point)	-76³F/-60³C
Relative vapor pressure	2.600 AIR=1
Density	1.037 g/cm³ @ 68°F/20°C
Bulk density	No data
Water solubility	Completely soluble
Solubility(ies)	no data available @ 68°F/20°C
Partition coefficient: n-octanol/water	log Pow: -1.07
Autoignition temperature	700°F/371°C
Viscosity, dynamic	43.4mPa.s@25°C/77°F
Viscosity, kinematic	<20mm²/s@20°C/68°F
Solids in Solution	no data available
Decomposition temperature	no data available
Burning number	no data available
Dust Explosion constant	no data available
Minimum ignition energy	no data available

10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical Stability

Stable under normal conditions.

Conditions to Avoid

No data available.

Possibility of hazardous reactions

No hazards to be specifically mentioned.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity : LD 50 Rat : 21.0 – 33.7 g/kg

Product:

Acute oral toxicity: Remarks: Presumed non-toxic

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Acute Inhalation toxicity:	Remarks: presumed non-toxic
Acute dermal toxicity:	Remarks: presumed non-toxic

Components:
57-55-6

Acute oral toxicity:	LD50 (rat,, male and female): 22,000mg/kg Method: Standard Acute
Acute inhalation toxicity	LC (rabbit): 317042 Exposure time: 2 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity.

Skin corrosion/irritation

Product:
Classification: presumed non-toxic
Result: presumed non-toxic
Components:
57-55-6
Species: rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: No skin irritation:

Serious eye damage/eye irritation

Product:
Classification: presumed non-toxic
Result: presumed non-toxic
Components:
57-55-6
Species: rabbit
Result: No eye irritation
Method: OECD Test Guideline 404
GLP: yes

Respiratory or skin sensitization

Components:

57-55-6

Test type: Maximization
Species: Guinea pig
Method: In vivo
Result: Did not cause sensitization on laboratory animals.

Germ cell mutagenicity

Product:

Germ cell mutagenicity assessment: Mutagenicity classification is not possible.

Components:

57-55-6

Genotoxicity in vitro:

Test type: Chromosome aberration test in vitro.
Test species: Human lymphocytes.
Metabolic activation: With and without metabolic activation.
Method: OECD Test Guideline 473
Result: Negative
GLP: Yes

Test type: Ames test
Metabolic activation: With metabolic activation
Result: negative

Test type: Ames test
Metabolic activation: Without metabolic activation
Result: negative

Genotoxicity in vivo:

Test type: Chromosome aberration assay in vivo.
Test species: rat (male)
Cell type: Bone marrow.
Application route: Oral
Exposure time: Single/5 doses in 24 hrs
Dose: 0, 30,2500, 5000 mg/kg
Result: Negative

Genotoxicity in vivo (cont.):

Test type: In vivo micronucleus test.
Test species: mouse (male)
Cell type: Bone marrow.
Application route: Intraperitoneal
Exposure time: Single
Dose: 2500, 5000, 10000, 15000 mg/kg
Result: Negative

Test type: Dominant lethal assay.
Test species: rat (male)
Application route: Oral
Exposure time: Single/5 doses in 24 hr
Dose: 0, 30, 2500, 5000 mg/kg
Result: Negative

Germ cell mutagenicity assessment: Test on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Product:

Carcinogenicity assessment: Carcinogenicity classification is not possible.

Components:

57-55-6

Species: rat (male)
Application route: Oral
Exposure time: 2 yrs
Dose: 200, 400, 900, 1700 mg/kg bw
Group: yes
NOAEL: 1,700 mg/kg bw/day
Result: Did not display carcinogenic properties.

Species: rat (female)
Application route: Oral
Exposure time: 2 yrs
Dose: 300, 500, 1000, 2100 mg/kg bw
Group: yes
NOAEL: 2,100 mg/kg bw/day
Result: Did not display carcinogenic properties.

Species: rat (male and female)
Application route: Inhalation (vapor)
Exposure time: Up to 18 mos
Dose: 0,>350, mg//m^3
NOAEL: 350 mg/m^3
Result: Did not display carcinogenic properties.

Carcinogenicity Assessment: No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Product:
Reproductive toxicity assessment: Reproduction classification is not possible.
Teratogenicity classification is not possible.

Components:
57-55-6
Effects on fertility:
Species: mouse (male and female)
Application route: Oral
Dose: 0, 1820, 4800, 10100 mg/kg bw
General toxicity – Parent: NOAEL: 10,100 mg/kg body weight.
General toxicity F1: NOAEL: 10,100 mg/kg body weight.
Fertility: NOAEL: 10,100 mg/kg body weight.
Result: No reproductive effects.

Effects on fetal development:
Species: mouse
Dose: 0, 52, 520, 10400 mg/kg bw/d
Duration of single treatment: 10 d
General Toxicity Maternal: NOAEL: 10,400 mg/kg body weight.
Teratogenicity: NOAEL: 10,400 mg/kg body weight.
Developmental Toxicity: NOAEL: 10,4000 mg/kg body weight.
Result: No teratogenic effects.
GLP: Yes

Reproductive toxicity assessment: No evidence of adverse effects on sexual function and fertility, and on development based on animal experiments.

STOT – Single Exposure

Product:

No data available.

Components:

57-55-6 No data available.

STOT – Repeated Exposure

Product:

No data available.

Components:

57-55-6 No data available.

Repeated Dose Toxicity

Components:

57-55-6

Species: rat (male)
NOAEL: 1,700 mg/kg
Application route: Oral
Exposure time: 2 yrs
Number of exposures: Daily
Dose: 200, 400, 900, 1700 mg/kg bw
Group: yes

Species: rat (male)
NOAEL: 1,700 mg/kg
Application route: Oral
Exposure time: 2 yrs
Number of exposures: Daily
Dose: 200, 400, 900, 1700 mg/kg bw
Group: yes

Species: rat (male)
NOAEL: 2,200 mg/kg
Application route: Inhalation
Exposure time: 90 d
Number of exposures: 6 h/d, 5 d wk
Dose: 0, 160, 1000, 2200 mg/m³
Group: yes

Species: rat (female)
NOAEL: 1,000 mg/kg
Application route: Inhalation
Exposure time: 90 d
Number of exposures: 6 h/d, 5 d/wk
Dose: 0, 160, 1000, 2200 mg/m³
Symptoms: Weight loss

Aspiration toxicity

Components:

57-55-6	No aspiration toxicity classification.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish:	Remarks: Presumed non-toxic.
Toxicity to daphnia and other aquatic invertebrates:	Remarks: Presumed non-toxic.
Toxicity to algae:	Remarks: Presumed non-toxic.

Components:

57-55-6	
Toxicity to fish:	LC50 (Oncorhynchus mykiss (rainbow trout): >100 mg/l.

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Toxicity to fish: (cont.)	Exposure time: 96 h Test type: Static test.
Toxicity to daphnia and other aquatic invertebrates:	LC50 (Ceriodaphnia dubia): >100 mg/l Exposure time: 48 h Test type: Static test..
Toxicity to algae:	EC50 (Selenastrum capricornutum (green algae)): > 100 mg/l. End point: Growth rate. Exposure time: 72 h Test type: Static test. Method: OECD Test Guideline 201. GLP: Yes
Toxicity to bacteria:	NOEC (pseudomonas putida): >20,000 mg/l End point: Growth rate. Exposure time: 18 h GLP:

Persistence and degradability

Components:
57-55-6

Biodegradability:	Inoculum: Activated sludge Concentration: 100mg/l Exposure time: 28 d Remarks: Readily biodegradable.

Bioaccumulative potential

Components:
57-55-6

Partition coefficient: n-octanol/water:	Remarks: No data available.

Mobility in soil

No data available

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Other adverse effects
No data available

Product:

Regulation	40 CFR Protection of Environment: Part 82 Protection of Stratospheric Ozone – CAA Section 602 Class I Substances.
Remarks:	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App. A+B).

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

Waste from residues:	Dispose of in accordance with all applicable local, state and federal regulations.
Contaminated packaging:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

IATA (International Air Transport Association): Not regulated as a dangerous good.
IMDG-Code: Not regulated as a dangerous good.
DOT (Department of Transportation) Not regulated as a dangerous good.

15. REGULATORY INFORMATION

OSHA Hazards:	No OSHA Hazards
WHMIS Classification:	Not rated

EPCRA – Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity	This material does not contain any components with a CERCLA RQ.
SARA 304 Extremely Hazardous Substances Reportable Quantity	This material does not contain any components with a section 304 EHS RQ.
SARA 311/312 Hazards:	No SARA Hazards.
SARA 302	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title II, Section 302.
SARA 313	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP) as defined by the U. S. Clean Air Act Section 12 (40CFR 61).

This product does not contain any chemicals listed under the U. S. Clean Air Act Section 112 (r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U. S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

57-55-6	Propylene Glycol	75%

Clean Water Act

This product does not contain any Hazardous Substances listed under the U. S. Clean Water Act, Section 311, Table116.4A.

This product does not contain any Hazardous Chemicals listed under the U. S. Clean Water Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U. S. Clean Water Act Section 307.

U.S. State Regulations

Massachusetts Right To Know	No components are subject to the Massachusetts Right to Know Act.		
Pennsylvania Right To Know	57-55-6	Propylene Glycol	75%

New Jersey Right to Know	57-55-6	Propylene Glycol	75%
California Prop 65	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.		

The components of this product are reported in the following inventories:

Australia: Australia Inventory of Chemical Substances (AICS)	y (positive listing)
Canada: Domestic Substances List (DSL). .	y (positive listing)
China: Inventory of Existing Chemical Substances in China	y (positive listing)
Japan: Existing and New Chemical Substances Inventory (ENCS)	y (positive listing)
Inventory of Chemical Substances (ISHL) METI	y (positive listing)\
US: Toxic Substances Control Act (TSCA)	y (positive listing)
Korea: Toxic Chemical Control Law 9TCCL list	y (positive listing)
Philippines: The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
New Zealand: Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	y (positive listing)

16. OTHER INFORMATION

Further Information

	HMIS III	NFPA
Health	0	0
Flammability	1	1
Physical hazards	0	
Instability		0
Specific hazard	--	--

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The information accumulated herein is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data may become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable and suitable to their circumstances.