FUEL CELL G20

ANTIFREEZE / COOLANT

For use with Fuel Cells only

Version: 1.0 | Revision Date: 04/16/2020 | Print Date: 02/03/2022

29 CFR 1910.1200 (OSHA HazCom 2012)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Trade name : FUEL CELL G20
ANTIFREEZE/COOLANT

Supplier Details:

RILCO, Inc.
1320 1st Street
Rock Island, IL 61201
309-788-5631
309-786-3946

Emergency Contact:

24 hr CHEMTREC 1-800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 4

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Liver, Kidney)

GHS label elements

Hazard pictograms :

Signal Word : Warning

Hazard Statements : May cause damage to organs (Liver, Kidney) through prolonged or repeated exposure if swallowed.
Harmful if swallowed.

Precautionary Statements : **Prevention:**
Do not eat, drink or smoke when using this product.
Wash skin thoroughly after handling.

Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
Response:
Get medical advice/ attention if you feel unwell.
IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (%)
ETHYLENE GLYCOL	107-21-1	Acute Tox. 4; H302 STOT RE 2; H373	>=50.00 - < 60.00
DIETHYLENE GLYCOL	111-46-6	Acute Tox. 4; H302 STOT RE 2; H373	>=1.50 - < 5.00

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Do not leave the victim unattended.
Show this safety data sheet to the doctor in attendance.
Move out of dangerous area.

If inhaled : If symptoms persist, call a physician.
If unconscious, place in recovery position and seek medical advice.
If breathed in, move person into fresh air.

In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.

In case of eye contact : If eye irritation persists, consult a specialist.
Protect unharmed eye.

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		Remove contact lenses. Flush eyes with water as a precaution.
If swallowed	:	If symptoms persist, call a physician. Never give anything by mouth to an unconscious person. Do not give milk or alcoholic beverages. Rinse mouth with water. Obtain medical attention.
Most important symptoms and effects, both acute and delayed	:	May cause damage to organs through prolonged or repeated exposure if swallowed. Harmful if swallowed. No symptoms known or expected.
Notes to physician	:	No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Foam Water spray Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses. If product is heated above its flash point it will produce vapors sufficient to support combustion. Vapors are heavier than air and may travel along the ground and be ignited by heat, pilot lights, other flames and ignition sources at locations near the point of release.
Hazardous combustion products	:	No hazardous combustion products are known
Specific extinguishing methods	:	
		Product is compatible with standard fire-fighting agents.
Further information	:	Standard procedure for chemical fires.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
Methods and materials for containment and cleaning up	:	Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Other information	:	Comply with all applicable federal, state, and local regulations.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Dispose of rinse water in accordance with local and national regulations. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Container hazardous when empty. Do not smoke. Do not breathe vapours/dust.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
ETHYLENE GLYCOL	107-21-1	C	50 ppm 125 mg/m3	OSHA P0
		C	40 ppm 100 mg/m3 Vapour	CAL PEL

		TWA	25 ppm Vapour	ACGIH
		STEL	50 ppm Vapour	ACGIH
		STEL	10 mg/m3 Inhalable fraction, Aerosol only	ACGIH
DIETHYLENE GLYCOL	111-46-6	TWA	10 mg/m3	US WEEL

Engineering measures : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Safety shoes
Impervious clothing
Wear as appropriate:
Wear resistant gloves (consult your safety equipment supplier).

Hygiene measures : When using do not smoke.
When using do not eat or drink.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Odour : No data available

Odour Threshold : No data available

pH : 6

Melting point/freezing point : No data available

Boiling point/boiling range	:	No data available
Flash point	:	260 °F / 127 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Self-ignition	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1.07 g/cm3 (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under recommended storage conditions.

Possibility of hazardous reactions	:	Product will not undergo hazardous polymerization.
Conditions to avoid	:	excessive heat
Incompatible materials	:	Sulphur compounds Strong oxidizing agents strong alkalis Bases Alkaline earth metals Alkali metals Aldehydes Acids
Hazardous decomposition products		No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Ingestion
Eye Contact
Skin contact
Inhalation
Acute toxicity
Harmful if swallowed.
Product:

Acute oral toxicity	:	Acute toxicity estimate: 949.9 mg/kg Method: Calculation method Remarks: Ingestion of medications contaminated with diethylene glycol has caused kidney failure and death in humans. Products containing diethylene glycol should be considered toxic by ingestion.
Acute dermal toxicity	:	Remarks: Skin absorption of this material (or a component) may be increased through injured skin.

Components:
107-21-1:

Acute oral toxicity	:	LD0 (Human): estimated 1.56 g/kg Assessment: The component/mixture is classified as acute oral toxicity, category 4.
Acute inhalation toxicity	:	LC50 (Rat): 10.9 mg/l Exposure time: 1 h Test atmosphere: dust/mist

		Assessment: No adverse effect has been observed in acute inhalation toxicity tests.
Acute dermal toxicity	:	LD50 (Rabbit): 9,530 mg/kg
Acute toxicity (other routes of administration)	:	LD50 (Rat): 5,010 mg/kg Application Route: Intraperitoneal LD50 (Rat): 3,260 mg/kg Application Route: Intravenous

111-46-6:

Acute oral toxicity	:	LD50 (Human): Expected 1,120 mg/kg Target Organs: Kidney
Acute inhalation toxicity	:	LC50 (Rat): > 4.6 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: No adverse effect has been observed in acute inhalation toxicity tests.
Acute dermal toxicity	:	LD50 (Rabbit): 13,300 mg/kg

Skin corrosion/irritation
Not classified based on available information.
Components:
107-21-1:

Species	:	Rabbit
Result	:	No skin irritation

111-46-6:

Species	:	Human
Result	:	Slight, transient irritation

Serious eye damage/eye irritation
Not classified based on available information.
Product:

Remarks	:	Unlikely to cause eye irritation or injury.

Components:
107-21-1:

Result	:	Slight, transient irritation

111-46-6:

Species	:	Rabbit
Result	:	Slight, transient irritation

Respiratory or skin sensitisation
Skin sensitisation
Not classified based on available information.

Respiratory sensitisation
Not classified based on available information.
Components:
107-21-1:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Assessment	:	Does not cause skin sensitisation.

111-46-6:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Method	:	Directive 67/548/EEC, Annex V, B.6.
Result	:	Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity
Not classified based on available information.
Components:
107-21-1:

Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: negative

111-46-6:

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative GLP: yes Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479 Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: In vivo micronucleus test Species: Mouse Method: OECD Test Guideline 474 Result: negative GLP: yes

Carcinogenicity
Not classified based on available information.
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.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Not classified based on available information.
STOT - single exposure
Not classified based on available information.
STOT - repeated exposure
May cause damage to organs (Kidney, Liver) through prolonged or repeated exposure if swallowed.
Components:
107-21-1:

Exposure routes	:	Ingestion
Target Organs	:	Kidney, Liver
Assessment	:	May cause damage to organs through prolonged or repeated exposure.

111-46-6:

Exposure routes	:	Ingestion
Target Organs	:	Kidney
Assessment	:	May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity
Not classified based on available information.

Experience with human exposure
Components:
107-21-1:

Ingestion	:	Target Organs: Kidney

111-46-6:

General Information	:	Liver Kidney

Further information
Product:

Remarks	:	No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Product:
Ecotoxicology Assessment

Short-term (acute) aquatic hazard	:	Not classified based on available information.
Long-term (chronic) aquatic hazard	:	Not classified based on available information.

Components:
ETHYLENE GLYCOL:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 27,540 mg/l Exposure time: 96 h Test Type: static test LC50 (Pimephales promelas (fathead minnow)): 8,050 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 6,500 - 13,000 mg/l End point: Growth inhibition Exposure time: 7 Days
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 32,000 mg/l Exposure time: 7 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 24,000 mg/l Exposure time: 7 d

DIETHYLENE GLYCOL:

Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): > 10,000 mg/l Exposure time: 24 h Test Type: static test Method: DIN 38412

Persistence and degradability
Components:
ETHYLENE GLYCOL:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 90 - 100 % Exposure time: 10 d Method: OECD Test Guideline 301

DIETHYLENE GLYCOL:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 70 - 80 % Exposure time: 28 d Method: OECD Test Guideline 301B

No data available
Bioaccumulative potential
Components:
ETHYLENE GLYCOL:

Bioaccumulation	:	Species: Crayfish (Procambarus) Bioconcentration factor (BCF): 0.27 Exposure time: 61 d Concentration: 1000 mg/l Method: Flow through
Partition coefficient: n-octanol/water	:	log Pow: -1.36

DIETHYLENE GLYCOL:

Bioaccumulation	:	Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 100
Partition coefficient: n-octanol/water	:	log Pow: -1.47

No data available

Mobility in soil

Components:

No data available

Other adverse effects

No data available

Product:

Additional ecological information	:	No data available

Components:

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice	:	Send to a licensed waste management company. Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Dispose of in accordance with all applicable local, state and federal regulations.
Contaminated packaging	:	Do not re-use empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Dispose of as unused product. Empty remaining contents.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

49 CFR
Not regulated as a dangerous good

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

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

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
107-21-1	Not Assigned	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Specific target organ toxicity (single or repeated exposure)
Acute toxicity (any route of exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

107-21-1	Not Assigned	>= 50 - < 70 %
111-46-6	Not Assigned	>= 1 - < 5 %

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California Prop. 65

⚠ **WARNING**: Reproductive Harm - www.P65Warnings.ca.gov.

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

DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On TSCA Inventory

TSCA list

No substances are subject to TSCA 12(b) export notification requirements.

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

Internal information : 000000276615

NFPA:	HMIS III:

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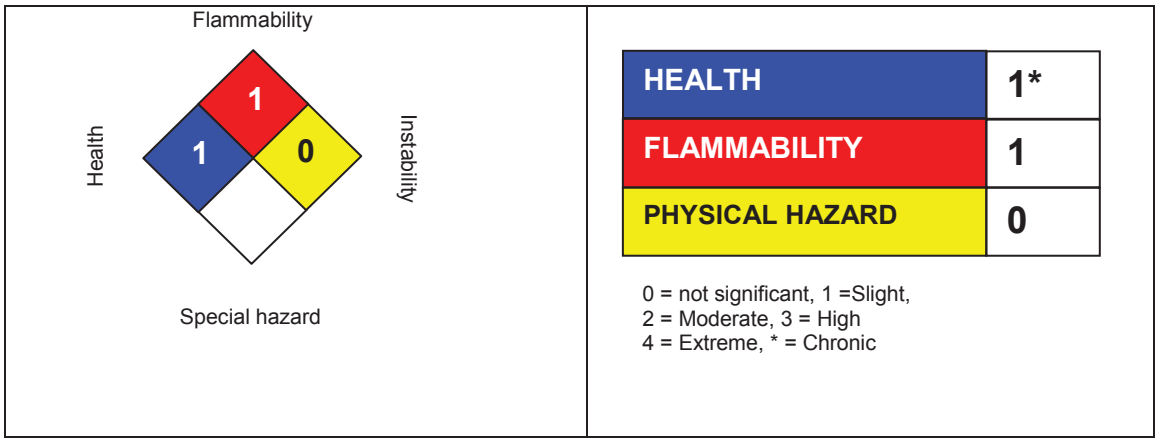

NFPA Flammable and Combustible Liquids Classification
Combustible Liquid Class IIIB

Full text of H-Statements

H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed.

Sources of key data used to compile the Safety Data Sheet
Valvoline internal data including own and sponsored test reports
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Valvoline's Environmental Health and Safety Department (1-800-VALVOLINE).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :
ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.

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IATA-DGR : Dangerous Goods Regulation by the “International Air Transport Association” (IATA).

ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the “International Civil Aviation Organization”
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement
PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
DOT : Department of Transportation
FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
HMIRC : Hazardous Materials Information Review Commission
HMIS : Hazardous Materials Identification System
NFPA : National Fire Protection Association
NIOSH : National Institute for Occupational Safety and Health
OSHA : Occupational Safety and Health Administration
PMRA : Health Canada Pest Management Regulatory Agency
RTK : Right to Know
WHMIS : Workplace Hazardous Materials Information System