



RADCOLUBE® AAG

Safety Data Sheet

A-A-59290 Hydraulic Fluid, Arresting Gear

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Version: 7.0

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 1: Identification

1.1. Identification

Trade name RADCOLUBE® AAG
Specification: A-A-59290 Hydraulic Fluid, Arresting Gear

National Stock Number(s) (NSN): 9150-00-224-8729 5 Gallon Pail
9150-00-243-1987 55 Gallon Drum

1.2. Recommended use and restrictions on use

Use of the substance/mixture: This product contains ethylene glycol that has been modified with corrosion inhibitors. The modified glycol is generally used in aircraft arresting gear systems as a hydraulic fluid and is not interchangeable with any other type of grade of hydraulic fluid.

Use of the substance/mixture: Hydraulic fluids and additives

Recommended use: Hydraulic fluids

Restrictions on use: Hydraulic fluids

1.3. Supplier

Manufacturer

Radco Industries Inc.
CAGE Code 6ZS16
700 Kingsland Drive
Batavia, Illinois 60510
United States
T (630) 232-7966
www.radcoind.com

1.4. Emergency telephone number

Emergency number: For Chemical Emergency Call CHEMTREC 24hr/day 7days/week
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-741-5970
(collect calls accepted)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled
Specific target organ toxicity (repeated exposure) Category 2	H373	May cause damage to organs (kidneys, liver) through prolonged or repeated exposure (oral)

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements**GHS US labeling**

Hazard pictograms (GHS US):



Signal word (GHS US):

Warning

Hazard statements (GHS US):

H332 - Harmful if inhaled

H373 - May cause damage to organs (kidneys, liver) through prolonged or repeated exposure (oral)

Precautionary statements (GHS US):

P260 - Do not breathe fume, mist, spray, vapors.

P261 - Avoid breathing fume, mist, spray, vapors.

P271 - Use only outdoors or in a well-ventilated area.

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

P312 - Call a POISON CENTER, a doctor if you feel unwell.

P314 - Get medical advice/attention if you feel unwell.

P501 - Dispose of contents/container to an approved waste disposal plant.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients**3.1. Substances**

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
ethanediol, ethylene glycol (Base Stock)	CAS-No.: 107-21-1	≥ 93.95	Acute Tox. 4 (Inhalation:dust,mist), H332 STOT RE 2, H373
Triethanolamine Phosphate	CAS-No.: 10017-56-8	2.25 – 2.75	Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319
Triethanolamine	CAS-No.: 102-71-6	≤ 0.5	Not classified

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures**4.1. Description of first aid measures**

First-aid measures general:

Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation:

Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.

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First-aid measures after skin contact: Wash skin with plenty of water.
First-aid measures after eye contact: Rinse eyes with water as a precaution.
First-aid measures after ingestion: Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation: Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact: None under normal conditions.
Symptoms/effects after eye contact: None under normal conditions.
Symptoms/effects after ingestion: None under normal conditions.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard: No fire hazard.
Explosion hazard: No direct explosion hazard.
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Stop leak if safe to do so. Notify authorities if product enters sewers or public waters.
Absorb spillage to prevent material-damage.

6.1.1. For non-emergency personnel

Protective equipment: Wear recommended personal protective equipment.
Emergency procedures: Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures: Evacuate unnecessary personnel. Stop leak if safe to do so.

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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment: Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.

Methods for cleaning up: Take up liquid spill into absorbent material.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Not expected to present a significant hazard under anticipated conditions of normal use.

Precautions for safe handling: Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.

Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Keep in a cool, well-ventilated place away from heat.

Storage conditions: Keep cool. Protect from sunlight.

Packaging materials: Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

RADCOLUBE® AAG	
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethylene glycol
ACGIH OEL TWA	25 ppm (V - Vapor fraction)
ACGIH OEL STEL	10 mg/m ³ (I - Inhalable particulate matter, H - Aerosol only)
	50 ppm (V - Vapor fraction)
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2024
ethanediol, ethylene glycol (107-21-1)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethylene glycol
ACGIH OEL TWA	25 ppm (Vapor fraction)

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ACGIH OEL STEL	10 mg/m ³ (Inhalable fraction, Aerosol only)
	50 ppm (Vapor fraction)
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2023

Triethanolamine Phosphate (10017-56-8)

USA - ACGIH - Occupational Exposure Limits

Local name	Triethanolamine
ACGIH OEL TWA	5 mg/m ³
Remark (ACGIH)	TLV® Basis: Eye & skin irr
Regulatory reference	ACGIH 2023

Triethanolamine (102-71-6)

USA - ACGIH - Occupational Exposure Limits

Local name	Triethanolamine
ACGIH OEL TWA	5 mg/m ³
Remark (ACGIH)	TLV® Basis: Eye & skin irr
Regulatory reference	ACGIH 2023

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Appearance:	Liquid.
Color:	Yellow
Odor:	mild
Odor threshold:	No data available
pH:	No data available
pH solution:	50 (7.2 – 7.8) % (Aqueous solution)
Melting point:	Not applicable
Freezing point:	≤ -17.8 °C
Boiling point:	≥ 165 °C
Flash point:	No data available
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.
Vapor pressure:	No data available
Relative vapor density at 20°C:	No data available
Relative density:	1.123 at 15.5°C/15.5°C (60°F/60°F)
Solubility:	Material highly soluble in water.
Partition coefficient n-octanol/water (Log Pow):	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity, kinematic:	9 – 10 mm ² /s at 37.7°C (100°F)
Viscosity, dynamic:	No data available
Explosion limits:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available

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9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral):	Not classified
Acute toxicity (dermal):	Not classified
Acute toxicity (inhalation):	Inhalation:dust,mist: Harmful if inhaled.
Skin corrosion/irritation:	Not classified
Carcinogenicity:	Not classified
Aspiration hazard:	Not classified
Viscosity, kinematic:	9 – 10 mm ² /s at 37.7°C (100°F)
Symptoms/effects after inhalation:	Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact:	None under normal conditions.
Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	None under normal conditions.
STOT-single exposure:	Not classified
STOT-repeated exposure:	May cause damage to organs (kidneys, liver) through prolonged or repeated exposure (oral).
Reproductive toxicity:	Not classified

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ATE US (dust, mist):	1.554 mg/l/4h
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ethanediol, ethylene glycol (107-21-1)	
LD50 oral rat:	7712 mg/kg body weight Animal: rat
LC50 Inhalation - Rat:	> 2.5 mg/l (6 h, Rat, Male / female, Experimental value, Inhalation (aerosol))
ATE US (oral):	7712 mg/kg body weight
ATE US (dust, mist):	1.5 mg/l/4h
Triethanolamine Phosphate (10017-56-8)	
ATE US (gases):	4500 ppmV/4h
ATE US (vapors):	11 mg/l/4h
ATE US (dust, mist):	1.5 mg/l/4h
Triethanolamine (102-71-6)	
LD50 oral rat:	6400 mg/kg body weight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rat:	> 5000 mg/kg (Rat, Dermal)
LD50 dermal rabbit:	> 2000 mg/kg body weight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
ATE US (oral):	6400 mg/kg body weight
ethanediol, ethylene glycol (107-21-1)	
Serious eye damage/irritation:	Not classified
Triethanolamine Phosphate (10017-56-8)	
Serious eye damage/irritation:	Not classified
Triethanolamine (102-71-6)	
Serious eye damage/irritation:	Not classified
ethanediol, ethylene glycol (107-21-1)	
Respiratory or skin sensitization:	Not classified
Triethanolamine Phosphate (10017-56-8)	
Respiratory or skin sensitization:	Not classified
Triethanolamine (102-71-6)	
Respiratory or skin sensitization:	Not classified
ethanediol, ethylene glycol (107-21-1)	
Germ cell mutagenicity:	Not classified

Triethanolamine Phosphate (10017-56-8)	
Germ cell mutagenicity:	Not classified
Triethanolamine (102-71-6)	
Germ cell mutagenicity:	Not classified
ethanediol, ethylene glycol (107-21-1)	
NOEL (chronic,oral,animal/male,2 years):	1500 mg/kg body weight Animal: mouse, Animal sex: male, Remarks on results: other:Effect type: carcinogenicity (migrated information)
Triethanolamine (102-71-6)	
NOEL (chronic,oral,animal/male,2 years):	63 mg/kg body weight Animal: rat, Animal sex: male, Guideline: OECD Guideline 451 (Carcinogenicity Studies), Remarks on results: other:
IARC group:	3 - Not classifiable
ethanediol, ethylene glycol (107-21-1)	
STOT-repeated exposure:	May cause damage to organs through prolonged or repeated exposure.
Triethanolamine (102-71-6)	
NOEL (oral,rat,90 days):	1000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

ethanediol, ethylene glycol (107-21-1)	
LC50 - Fish [1]:	72860 mg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]:	> 100 mg/l Test organisms (species): Daphnia magna
NOEC (chronic):	≥ 1000 mg/l Test organisms (species): Americamysis bahia (previous name: Mysidopsis bahia) Duration: '23 d'
Triethanolamine (102-71-6)	
LC50 - Fish [1]:	11800 mg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]:	609.88 mg/l Test organisms (species): Ceriodaphnia dubia

12.2. Persistence and degradability

ethanediol, ethylene glycol (107-21-1)	
Persistence and degradability:	Readily biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD):	0.47 g O ₂ /g substance

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ethanediol, ethylene glycol (107-21-1)	
Chemical oxygen demand (COD):	1.24 g O ₂ /g substance
ThOD:	1.29 g O ₂ /g substance

Triethanolamine (102-71-6)	
Persistence and degradability:	Readily biodegradable in water.
Biochemical oxygen demand (BOD):	0.02 g O ₂ /g substance
Chemical oxygen demand (COD):	1.5 g O ₂ /g substance
ThOD:	2.04 g O ₂ /g substance
BOD (% of ThOD):	0.02

12.3. Bioaccumulative potential

ethanediol, ethylene glycol (107-21-1)	
Partition coefficient n-octanol/water (Log Pow):	-1.36 (Experimental value)
Bioaccumulative potential:	Not bioaccumulative.

Triethanolamine (102-71-6)	
BCF - Fish [1]:	< 3.9 (Cyprinus carpio, Pure substance)
Partition coefficient n-octanol/water (Log Pow):	-2.53 – -1.32
Bioaccumulative potential:	Not bioaccumulative.

12.4. Mobility in soil

ethanediol, ethylene glycol (107-21-1)	
Mobility in soil:	0.2 Source: HSDB
Surface tension:	48.4 mN/m (20 °C)
Organic Carbon Normalized Adsorption Coefficient (Log Koc):	0 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil:	Highly mobile in soil.

Triethanolamine (102-71-6)	
Ecology - soil:	No (test) data on mobility of the component(s) available.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations**13.1. Disposal methods**

Regional waste regulation:	Disposal must be done according to official regulations.
Waste treatment methods:	Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations:	Disposal must be done according to official regulations.
Product/Packaging disposal recommendations:	Disposal must be done according to official regulations.
Additional information:	Do not re-use empty containers.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA / ICAO / ADN / RID / ADG

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT):	Not applicable
Proper Shipping Name (TDG):	Not applicable
Proper Shipping Name (IMDG):	Not applicable
Proper Shipping Name (IATA):	Not applicable

14.3. Transport hazard class(es)**DOT**

Transport hazard class(es) (DOT): Not applicable

TDG

Transport hazard class(es) (TDG): Not applicable

IMDG

Transport hazard class(es) (IMDG): Not applicable

IATA

Transport hazard class(es) (IATA): Not applicable

14.4. Packing group

Packing group (DOT):	Not applicable
Packing group (TDG):	Not applicable
Packing group (IMDG):	Not applicable
Packing group (IATA):	Not applicable

14.5. Environmental hazards

Other information: No supplementary information available.

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14.6. Special precautions for user**DOT**

No data available

TDG

No data available

IMDG

No data available

IATA

No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information**15.1. US Federal regulations**

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
ethanediol, ethylene glycol	107-21-1	Present	Active	
Triethanolamine Phosphate	10017-56-8	Present	Active	
Triethanolamine	102-71-6	Present	Active	

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Ethylene glycol	CAS-No. 107-21-1	≥ 93.95%
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ethanediol, ethylene glycol (107-21-1)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ:	5000 lb

15.2. International regulations**CANADA**

ethanediol, ethylene glycol (107-21-1)
Listed on the Canadian DSL (Domestic Substances List)

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Triethanolamine Phosphate (10017-56-8)

Listed on the Canadian DSL (Domestic Substances List)

Triethanolamine (102-71-6)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

ethanediol, ethylene glycol (107-21-1)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Triethanolamine (102-71-6)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

⚠ WARNING: This product can expose you to ethanediol, ethylene glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

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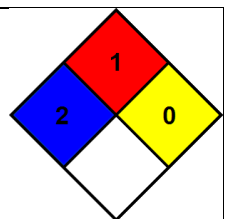
Full text of H-phrases

H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H373	May cause damage to organs through prolonged or repeated exposure

NFPA health hazard 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health 2 Moderate Hazard - Temporary or minor injury may occur

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Flammability	1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)
Physical	0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any particular process or for any particular purpose. Such information stated is to the best of Radco's knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made to its accuracy, reliability, or completeness, purchasers, users and distributors are not relying on any promise, representation, or recommendation made by Radco, and Radco does not accept liability for any loss or damage that may occur from the use of this information. Final determination of suitability of any material is the sole responsibility of the user. All material should be used with caution to guard against unknown hazards. Although certain hazards are described herein, Radco does not guarantee that these are the only hazards that exist.