

Material Safety Data Sheet



READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT

PRODUCT CODE AND NAME: ACDELCO® PART NO. 92147598
1L DEX-COOL® EXTENDED LIFE (RED)
ANTIFREEZE/COOLANT
DATE ISSUED: AUGUST 2010
COMPANY: CHIRON CHEMICALS CONSULTING & SERVICES P/L

1. PRODUCT AND COMPANY NAME

PRODUCT CODE AND NAME:
ACDELCO® PART NO. 92147598 1L DEX-COOL® EXTENDED LIFE (RED) ANTIFREEZE/COOLANT

Recommended Use: Automobile and heavy duty engine coolant.

COMPANY INFORMATION:
CHIRON CHEMICALS CONSULTING & SERVICES P/L
74 Burwood Road
Hawthorn Victoria 3122
Australia
Tel: + 61 3 9818-8000
Fax: + 61 3 9818-5155
Emergency Telephone Number: + 61 413 431 878

2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:

Hazardous according to the criteria of NOHSC.

Hazard Symbols

Xn Harmful

Risk Phrases

R22 Harmful if swallowed.

Safety Phrases

S2 Keep out of reach of children.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>No.</u>	<u>Chemical Name</u>	<u>CAS Number</u>	<u>Wt %</u>
01	Monoethylene Glycol	107-21-1	V HIGH
02	Components determined to be non hazardous	Proprietary	LOW
03	Denatonium Benzoate	3734-33-6	V LOW

PROPORTION (%weight per weight)

V HIGH > 60, HIGH 30 - 60, MED 10-29, LOW 1-9, V LOW < 1

4. FIRST AID MEASURES

Inhalation:

If irritation, headache, nausea, or drowsiness occurs remove to fresh air. Loosen clothing and allow patient to assume most comfortable position and keep warm until fully recovered. If breathing is laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a face mask. If breathing is stopped apply artificial respiration at once. In event of cardiac arrest, apply external cardiac massage. Seek medical attention immediately.

Skin:

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. If irritation occurs seek medical attention.

Eyes:

Irrigate eyes with copious quantities of water for at least 15 minutes whilst holding eyelids open. Seek medical attention if eye irritation persists.

Ingestion:

Get medical attention immediately. If swallowed rinse mouth with water. Give plenty of water to drink. Do not give anything by mouth to an unconscious or convulsing person. If vomiting occurs give further water. Ethylene or Diethylene Glycol poisoning may initially produce behaviour changes, drowsiness, vomiting, diarrhoea, thirst and convulsions. Renal damage or failure with metabolic acidosis are late signs of poisoning. Immediate treatment may reduce toxic effects, supplemented, if necessary with haemodialysis. Intravenous Ethanol in Sodium Bicarbonate solution is a recognised antidote. For advice contact a Poisons Information Centre (Phone Australia 13 1126; New Zealand 0800 764 766) or a doctor (at once).

Note to Physician:

Treat symptomatically. Early diagnosis and treatments of ingestion is important. Ensure emesis is satisfactory. Test and correct for metabolic acidosis and hypocalcaemia. Apply rapid and sustained diuresis when possible with the use of hypertonic mannitol. Evaluate renal status and begin haemodialysis if indicated.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

For large fires use water fog, fine water spray or foam. Do not use water jets.

For small fires use foam, dry chemical, carbon dioxide or water spray.

Special Fire Fighting Procedures:

Heating can cause expansion or decomposition leading to violent rupture of containers. If safe to do so, remove containers from path of fire. Keep containers cool with water spray. Avoid reaction with strong oxidisers, strong alkalis and strong acids.

Special Protective Equipment:

Fire fighters should wear full protective clothing including a self contained breathing apparatus.

Hazards from combustion products:

The product is a combustible liquid. On burning will emit toxic fumes including those of carbon monoxide and carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures:

Slippery when spilt. Shut off source of leaks taking normal safety precautions. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and the inhalation of vapours. Eliminate sources of ignition in the surrounding area. Warn occupants of downwind areas. Prevent run off into drains and waterways. Contain spilled liquid with sand, soil, inert material or vermiculite if possible. Place spilled material in clean, dry sealable, labelled containers for disposal. Wash area down with detergent and excess water to remove residual material.

7. HANDLING AND STORAGE

Handling:

Avoid eye and repeated or prolonged skin contact. Avoid inhalation of vapour, mists or aerosols. Use with adequate ventilation. Always wash hands thoroughly after handling. Wash contaminated clothing and other protective equipment before storage or re-use. Do not dispose of material in sewers or waterways.

Storage:

Keep all containers tightly closed when not in use. Store containers in a cool place out of direct sunlight. Store away from incompatible materials such as strong acids and strong oxidising agents and foodstuffs.

Classified as a C1 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards:

No value has been assigned for this specific material by the National Occupational Health and Safety Commission (Worksafe Australia).

Exposure Limit:

In the absence of occupational exposure standards for this product, it is recommended that the following be adopted.

	TWA		STEL		Notices
	ppm	mg/m ³	ppm	mg/m ³	
Monoethylene glycol (vapour)	20	52	40	104	Skin
Monoethylene glycol (particulate)	-	10	-	-	Skin

As published by Safe Work Australia.

Exposure Standard (TWA) is the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) – the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour working life.

Skin Absorption Notice – absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

Engineering Controls:

Ensure ventilation is adequate to maintain air concentrations below Exposure Standard. If material is used in elevated temperatures or as an aerosol, use with local exhaust ventilation or while wearing respirator. Vapour heavier than air – prevent concentration in hollow slumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

Personal Protective Equipment:

Respiratory Protection: If inhalation risk exists wear a half face-piece filter respirator suitable for organic vapours/particulates meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Eye Protection: Always use safety glasses or a face shield when handling this product.

Skin/Body Protection: Wear overalls, safety shoes and impervious gloves. Available information suggests that gloves from neoprene, PVC, or natural rubber should be suitable for intermittent contact. However, due to variations in glove constructions and local conditions, final assessment should be made by the user.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Orange Liquid.

Odour:

Mild odour

pH:

8.4 for diluted product at 33% vol.

Ignition Temperature, degrees C:

Not Applicable

Flash Point, degrees C:

115 min (PMCC)

Flammable Limits % (Lower-Upper):

Not Applicable

Boiling Point/boiling range, degrees C:

Not Determined

Melting Point/melting range, degrees C:

Not Applicable

Pour Point, degrees C:

Not Determined

Relative Density at degrees C:

1.113 at 20.0°C

Vapour Pressure, kPa:

Not determined

Viscosity:

8 cSt at 40.0°C

Percent VOC:

Nil.

Vapour Density (Air = 1):

Not determined

Solubility in Water:

Complete

10. STABILITY AND REACTIVITY

Stability:

Stable under normal conditions of use.

Conditions to Avoid:

Excessive heat will lead to accelerated oxidative degradation.

Incompatibility (Materials to Avoid):

Avoid contact with strong oxidising agents.

Products Evolved When Subjected to Heat or Combustion:

Product does not decompose at ambient temperatures. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion of thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

No LD₅₀ data available for the final product. The toxicological information is based on data from a similar component or preparation.

Monoethylene Glycol:

Acute Health Effects:

Swallowed: Harmful if swallowed. Swallowing may cause initial symptoms similar to alcohol intoxication; progressing to vomit, headache, rapid respiratory and heart rate, lowered blood pressure, stupor, collapse and unconsciousness with convulsions. Death from respiratory arrest or cardiovascular collapse may follow. The mean lethal dose for a human is about 100 mL (3-4 ounces).

Eye: May be an eye irritant.

Skin: Contact with skin may result in irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through the skin but not readily absorbed in toxic amounts.

Inhaled: Inhalation of vapours (from heating), mists or aerosols can produce respiratory irritation and may result in headaches, dizziness and possible nausea.

Chronic Health Effects:

This product may aggravate existing medical conditions. Individuals with medical conditions involving the following should take appropriate precautions when handling this product. Person with pre-existing skin disorders, eye problems, or impaired liver, kidney, or respiratory function may be more susceptible to the effects of exposure. Always wear appropriate protective equipment, as recommended by your industrial hygienist or safety personnel, when exposure to this product can occur.

Acute Lethal Effects (LD₅₀ LC₅₀):

Oral: LD₅₀ : 4700 mg/kg (rat).
LD₅₀ : 5500 mg/kg (dog).
LD₅₀ : 1650 mg/kg (cat).
Believed to be 1.4 ml/kg (human).
Inhalation: TCLo : 10000 mg/m³ (human).
Dermal: LD₅₀ : 9530 mg/kg (rabbit).

Irritation Index, Estimation of Irritation:

Skin: Mild irritant (rabbit, Draize). Irritation Index believed to be 0.5 – 1.00/8.0.
Eyes: Mild irritant (rabbit, Draize). Irritation Index believed to be 15.00 – 25.00/110
Sensitisation: Not determined.

Repeated Dose Toxicity:

High doses of ethylene glycol in rat and mice have resulted in reproductive and developmental toxicity following exposure by the oral and inhalation (respirable aerosol) routes. These particular data sets are not considered relevant to normal industrial use but do emphasise the need for care in handling. Data from animal and human studies to date do not provide evidence that exposure to ethylene glycol has mutagenic or carcinogenic effects.

12. ECOLOGICAL INFORMATION

Ecological testing on this product has not been conducted. The information is based on information for representative substances.

The potential to bioaccumulate has not been determined, however the majority of the components in this product would be expected to be inherently readily biodegradable.

Monoethylene Glycol:

Persistence and Degradability:

The substance is expected to be readily biodegradable according to the AS 4351 Part 2 test method.

Bioaccumulation:

Not determined.

Aquatic Toxicity and Other Data Relating to Ecotoxicity:

Aquatic species: LC₅₀ (96h) : > 100 ml/L

Non hazardous to aquatic organisms.

Mobility:

No data available.

13. DISPOSAL CONSIDERATIONS

Empty containers should be forwarded to an approved agent for recycling. Avoid unauthorised discharge to sewer. Material suitable for disposal for incineration or landfill through an approved agent.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN Number	None Allocated	UN Number	None Allocated	UN Number	None Allocated
Shipping Name	None Allocated	Shipping Name	None Allocated	Shipping Name	None Allocated
DG Class	None Allocated	DG Class	None Allocated	DG Class	None Allocated
Subsidiary Risk	C1 Combustible Liquid	Subsidiary Risk	C1 Combustible Liquid	Subsidiary Risk	C1 Combustible Liquid
Packaging Group	None Allocated	Packaging Group	None Allocated	Packaging Group	None Allocated
Hazchem Code	None Allocated	Hazchem Code	None Allocated	Hazchem Code	None Allocated
Poisons Schedule	S5	Poisons Schedule	S5	Poisons Schedule	S5

15. REGULATORY INFORMATION

Classified as a C1 Combustible Liquid for the purpose of storage and handling, in accordance with the requirements of AS1940. Refer to State Regulations for storage and transport requirements. Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code for transport by Road and Rail. This material is a S5 Scheduled Poison and must be stored, maintained and used in accordance with the relevant regulations.

16. OTHER INFORMATION

Contact Point: Chiron Chemicals Consulting & Services P/L Ph: + 61 3 9818 8000

This MSDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product and in particular how to safely handle and use the product in the workplace. However, the Company makes no warranty or representation, express or implied, as to the accuracy of completeness of such information. Since Pty. Ltd. cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this MSDS in the context of how the user intends to handle and use the product in the workplace.

The provision of this Material Safety Data Sheet is not intended, of itself, to obviate the need for all users to satisfy themselves that the product described is suitable for their individual purposes and that the safety precautions and environmental advice are adequate for their individual purposes and situation. Further, it is the user's obligation to use this product safely and to comply with all applicable laws and regulations concerning the use of the product.

The Company accepts no responsibility for any injury, loss or damage, consequent upon any failure to follow the safety and other recommendations contained in this Material Safety Data Sheet, nor from any hazards inherent in the nature of the material, nor from any abnormal use of the material.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.

Material Safety Data Sheet



READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT

PRODUCT CODE AND NAME: ACDELCO® PART NO. 92145527
5L DEX-COOL® EXTENDED LIFE (RED)
ANTIFREEZE/COOLANT
DATE ISSUED: AUGUST 2010
COMPANY: CHIRON CHEMICALS CONSULTING & SERVICES P/L

1. PRODUCT AND COMPANY NAME

PRODUCT CODE AND NAME:
ACDELCO® PART NO. 92145527 5L DEX-COOL® EXTENDED LIFE (RED) ANTIFREEZE/COOLANT

Recommended Use: Automobile and heavy duty engine coolant.

COMPANY INFORMATION:
CHIRON CHEMICALS CONSULTING & SERVICES P/L
74 Burwood Road
Hawthorn Victoria 3122
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Fax: + 61 3 9818-5155
Emergency Telephone Number: + 61 413 431 878

2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:

Hazardous according to the criteria of NOHSC.

Hazard Symbols

Xn Harmful

Risk Phrases

R22 Harmful if swallowed.

Safety Phrases

S2 Keep out of reach of children.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>No.</u>	<u>Chemical Name</u>	<u>CAS Number</u>	<u>Wt %</u>
01	Monoethylene Glycol	107-21-1	V HIGH
02	Components determined to be non hazardous	Proprietary	LOW
03	Denatonium Benzoate	3734-33-6	V LOW

PROPORTION (%weight per weight)

V HIGH > 60, HIGH 30 - 60, MED 10-29, LOW 1-9, V LOW < 1

4. FIRST AID MEASURES

Inhalation:

If irritation, headache, nausea, or drowsiness occurs remove to fresh air. Loosen clothing and allow patient to assume most comfortable position and keep warm until fully recovered. If breathing is laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a face mask. If breathing is stopped apply artificial respiration at once. In event of cardiac arrest, apply external cardiac massage. Seek medical attention immediately.

Skin:

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. If irritation occurs seek medical attention.

Eyes:

Irrigate eyes with copious quantities of water for at least 15 minutes whilst holding eyelids open. Seek medical attention if eye irritation persists.

Ingestion:

Get medical attention immediately. If swallowed rinse mouth with water. Give plenty of water to drink. Do not give anything by mouth to an unconscious or convulsing person. If vomiting occurs give further water. Ethylene or Diethylene Glycol poisoning may initially produce behaviour changes, drowsiness, vomiting, diarrhoea, thirst and convulsions. Renal damage or failure with metabolic acidosis are late signs of poisoning. Immediate treatment may reduce toxic effects, supplemented, if necessary with haemodialysis. Intravenous Ethanol in Sodium Bicarbonate solution is a recognised antidote. For advice contact a Poisons Information Centre (Phone Australia 13 1126; New Zealand 0800 764 766) or a doctor (at once).

Note to Physician:

Treat symptomatically. Early diagnosis and treatments of ingestion is important. Ensure emesis is satisfactory. Test and correct for metabolic acidosis and hypocalcaemia. Apply rapid and sustained diuresis when possible with the use of hypertonic mannitol. Evaluate renal status and begin haemodialysis if indicated.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

For large fires use water fog, fine water spray or foam. Do not use water jets.

For small fires use foam, dry chemical, carbon dioxide or water spray.

Special Fire Fighting Procedures:

Heating can cause expansion or decomposition leading to violent rupture of containers. If safe to do so, remove containers from path of fire. Keep containers cool with water spray. Avoid reaction with strong oxidisers, strong alkalis and strong acids.

Special Protective Equipment:

Fire fighters should wear full protective clothing including a self contained breathing apparatus.

Hazards from combustion products:

The product is a combustible liquid. On burning will emit toxic fumes including those of carbon monoxide and carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures:

Slippery when spilt. Shut off source of leaks taking normal safety precautions. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and the inhalation of vapours. Eliminate sources of ignition in the surrounding area. Warn occupants of downwind areas. Prevent run off into drains and waterways. Contain spilled liquid with sand, soil, inert material or vermiculite if possible. Place spilled material in clean, dry sealable, labelled containers for disposal. Wash area down with detergent and excess water to remove residual material.

7. HANDLING AND STORAGE

Handling:

Avoid eye and repeated or prolonged skin contact. Avoid inhalation of vapour, mists or aerosols. Use with adequate ventilation. Always wash hands thoroughly after handling. Wash contaminated clothing and other protective equipment before storage or re-use. Do not dispose of material in sewers or waterways.

Storage:

Keep all containers tightly closed when not in use. Store containers in a cool place out of direct sunlight. Store away from incompatible materials such as strong acids and strong oxidising agents and foodstuffs.

Classified as a C1 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards:

No value has been assigned for this specific material by the National Occupational Health and Safety Commission (Worksafe Australia).

Exposure Limit:

In the absence of occupational exposure standards for this product, it is recommended that the following be adopted.

	TWA		STEL		Notices
	ppm	mg/m ³	ppm	mg/m ³	
Monoethylene glycol (vapour)	20	52	40	104	Skin
Monoethylene glycol (particulate)	-	10	-	-	Skin

As published by Safe Work Australia.

Exposure Standard (TWA) is the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) – the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour working life.

Skin Absorption Notice – absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

Engineering Controls:

Ensure ventilation is adequate to maintain air concentrations below Exposure Standard. If material is used in elevated temperatures or as an aerosol, use with local exhaust ventilation or while wearing respirator. Vapour heavier than air – prevent concentration in hollow slumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

Personal Protective Equipment:

Respiratory Protection: If inhalation risk exists wear a half face-piece filter respirator suitable for organic vapours/particulates meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Eye Protection: Always use safety glasses or a face shield when handling this product.

Skin/Body Protection: Wear overalls, safety shoes and impervious gloves. Available information suggests that gloves from neoprene, PVC, or natural rubber should be suitable for intermittent contact. However, due to variations in glove constructions and local conditions, final assessment should be made by the user.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Orange Liquid.

Odour:

Mild odour

pH:

8.4 for diluted product at 33% vol.

Ignition Temperature, degrees C:

Not Applicable

Flash Point, degrees C:

115 min (PMCC)

Flammable Limits % (Lower-Upper):

Not Applicable

Boiling Point/boiling range, degrees C:

Not Determined

Melting Point/melting range, degrees C:

Not Applicable

Pour Point, degrees C:

Not Determined

Relative Density at degrees C:

1.113 at 20.0°C

Vapour Pressure, kPa:

Not determined

Viscosity:

8 cSt at 40.0°C

Percent VOC:

Nil.

Vapour Density (Air = 1):

Not determined

Solubility in Water:

Complete

10. STABILITY AND REACTIVITY

Stability:

Stable under normal conditions of use.

Conditions to Avoid:

Excessive heat will lead to accelerated oxidative degradation.

Incompatibility (Materials to Avoid):

Avoid contact with strong oxidising agents.

Products Evolved When Subjected to Heat or Combustion:

Product does not decompose at ambient temperatures. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion of thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

No LD₅₀ data available for the final product. The toxicological information is based on data from a similar component or preparation.

Monoethylene Glycol:

Acute Health Effects:

Swallowed: Harmful if swallowed. Swallowing may cause initial symptoms similar to alcohol intoxication; progressing to vomit, headache, rapid respiratory and heart rate, lowered blood pressure, stupor, collapse and unconsciousness with convulsions. Death from respiratory arrest or cardiovascular collapse may follow. The mean lethal dose for a human is about 100 mL (3-4 ounces).

Eye: May be an eye irritant.

Skin: Contact with skin may result in irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through the skin but not readily absorbed in toxic amounts.

Inhaled: Inhalation of vapours (from heating), mists or aerosols can produce respiratory irritation and may result in headaches, dizziness and possible nausea.

Chronic Health Effects:

This product may aggravate existing medical conditions. Individuals with medical conditions involving the following should take appropriate precautions when handling this product. Person with pre-existing skin disorders, eye problems, or impaired liver, kidney, or respiratory function may be more susceptible to the effects of exposure. Always wear appropriate protective equipment, as recommended by your industrial hygienist or safety personnel, when exposure to this product can occur.

Acute Lethal Effects (LD₅₀ LC₅₀):

Oral: LD₅₀ : 4700 mg/kg (rat).
LD₅₀ : 5500 mg/kg (dog).
LD₅₀ : 1650 mg/kg (cat).
Believed to be 1.4 ml/kg (human).
Inhalation: TCLo : 10000 mg/m³ (human).
Dermal: LD₅₀ : 9530 mg/kg (rabbit).

Irritation Index, Estimation of Irritation:

Skin: Mild irritant (rabbit, Draize). Irritation Index believed to be 0.5 – 1.00/8.0.
Eyes: Mild irritant (rabbit, Draize). Irritation Index believed to be 15.00 – 25.00/110
Sensitisation: Not determined.

Repeated Dose Toxicity:

High doses of ethylene glycol in rat and mice have resulted in reproductive and developmental toxicity following exposure by the oral and inhalation (respirable aerosol) routes. These particular data sets are not considered relevant to normal industrial use but do emphasise the need for care in handling. Data from animal and human studies to date do not provide evidence that exposure to ethylene glycol has mutagenic or carcinogenic effects.

12. ECOLOGICAL INFORMATION

Ecological testing on this product has not been conducted. The information is based on information for representative substances.

The potential to bioaccumulate has not been determined, however the majority of the components in this product would be expected to be inherently readily biodegradable.

Monoethylene Glycol:

Persistence and Degradability:

The substance is expected to be readily biodegradable according to the AS 4351 Part 2 test method.

Bioaccumulation:

Not determined.

Aquatic Toxicity and Other Data Relating to Ecotoxicity:

Aquatic species: LC₅₀ (96h) : > 100 ml/L

Non hazardous to aquatic organisms.

Mobility:

No data available.

13. DISPOSAL CONSIDERATIONS

Empty containers should be forwarded to an approved agent for recycling. Avoid unauthorised discharge to sewer. Material suitable for disposal for incineration or landfill through an approved agent.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN Number	None Allocated	UN Number	None Allocated	UN Number	None Allocated
Shipping Name	None Allocated	Shipping Name	None Allocated	Shipping Name	None Allocated
DG Class	None Allocated	DG Class	None Allocated	DG Class	None Allocated
Subsidiary Risk	C1 Combustible Liquid	Subsidiary Risk	C1 Combustible Liquid	Subsidiary Risk	C1 Combustible Liquid
Packaging Group	None Allocated	Packaging Group	None Allocated	Packaging Group	None Allocated
Hazchem Code	None Allocated	Hazchem Code	None Allocated	Hazchem Code	None Allocated
Poisons Schedule	S5	Poisons Schedule	S5	Poisons Schedule	S5

15. REGULATORY INFORMATION

Classified as a C1 Combustible Liquid for the purpose of storage and handling, in accordance with the requirements of AS1940. Refer to State Regulations for storage and transport requirements. Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code for transport by Road and Rail. This material is a S5 Scheduled Poison and must be stored, maintained and used in accordance with the relevant regulations.

16. OTHER INFORMATION

Contact Point: Chiron Chemicals Consulting & Services P/L **Ph:** + 61 3 9818 8000

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If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.

Material Safety Data Sheet



READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF PRODUCT

PRODUCT CODE AND NAME: ACDELCO® PART NO. 95710438
20L DEX-COOL® EXTENDED LIFE (RED)
ANTIFREEZE/COOLANT
DATE ISSUED: AUGUST 2010
COMPANY: CHIRON CHEMICALS CONSULTING & SERVICES P/L

1. PRODUCT AND COMPANY NAME

PRODUCT CODE AND NAME:
ACDELCO® PART NO. 95710438 20L DEX-COOL® EXTENDED LIFE (RED) ANTIFREEZE/COOLANT

Recommended Use: Automobile and heavy duty engine coolant.

COMPANY INFORMATION:
CHIRON CHEMICALS CONSULTING & SERVICES P/L
74 Burwood Road
Hawthorn Victoria 3122
Australia
Tel: + 61 3 9818-8000
Fax: + 61 3 9818-5155
Emergency Telephone Number: + 61 413 431 878

2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:

Hazardous according to the criteria of NOHSC.

Hazard Symbols

Xn Harmful

Risk Phrases

R22 Harmful if swallowed.

Safety Phrases

S2 Keep out of reach of children.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>No.</u>	<u>Chemical Name</u>	<u>CAS Number</u>	<u>Wt %</u>
01	Monoethylene Glycol	107-21-1	V HIGH
02	Components determined to be non hazardous	Proprietary	LOW
03	Denatonium Benzoate	3734-33-6	V LOW

PROPORTION (%weight per weight)

V HIGH > 60, HIGH 30 - 60, MED 10-29, LOW 1-9, V LOW < 1

4. FIRST AID MEASURES

Inhalation:

If irritation, headache, nausea, or drowsiness occurs remove to fresh air. Loosen clothing and allow patient to assume most comfortable position and keep warm until fully recovered. If breathing is laboured and patient cyanotic (blue), ensure airways are clear and have a qualified person give oxygen through a face mask. If breathing is stopped apply artificial respiration at once. In event of cardiac arrest, apply external cardiac massage. Seek medical attention immediately.

Skin:

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. If irritation occurs seek medical attention.

Eyes:

Irrigate eyes with copious quantities of water for at least 15 minutes whilst holding eyelids open. Seek medical attention if eye irritation persists.

Ingestion:

Get medical attention immediately. If swallowed rinse mouth with water. Give plenty of water to drink. Do not give anything by mouth to an unconscious or convulsing person. If vomiting occurs give further water. Ethylene or Diethylene Glycol poisoning may initially produce behaviour changes, drowsiness, vomiting, diarrhoea, thirst and convulsions. Renal damage or failure with metabolic acidosis are late signs of poisoning. Immediate treatment may reduce toxic effects, supplemented, if necessary with haemodialysis. Intravenous Ethanol in Sodium Bicarbonate solution is a recognised antidote. For advice contact a Poisons Information Centre (Phone Australia 13 1126; New Zealand 0800 764 766) or a doctor (at once).

Note to Physician:

Treat symptomatically. Early diagnosis and treatments of ingestion is important. Ensure emesis is satisfactory. Test and correct for metabolic acidosis and hypocalcaemia. Apply rapid and sustained diuresis when possible with the use of hypertonic mannitol. Evaluate renal status and begin haemodialysis if indicated.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

For large fires use water fog, fine water spray or foam. Do not use water jets.

For small fires use foam, dry chemical, carbon dioxide or water spray.

Special Fire Fighting Procedures:

Heating can cause expansion or decomposition leading to violent rupture of containers. If safe to do so, remove containers from path of fire. Keep containers cool with water spray. Avoid reaction with strong oxidisers, strong alkalis and strong acids.

Special Protective Equipment:

Fire fighters should wear full protective clothing including a self contained breathing apparatus.

Hazards from combustion products:

The product is a combustible liquid. On burning will emit toxic fumes including those of carbon monoxide and carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures:

Slippery when spilt. Shut off source of leaks taking normal safety precautions. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and the inhalation of vapours. Eliminate sources of ignition in the surrounding area. Warn occupants of downwind areas. Prevent run off into drains and waterways. Contain spilled liquid with sand, soil, inert material or vermiculite if possible. Place spilled material in clean, dry sealable, labelled containers for disposal. Wash area down with detergent and excess water to remove residual material.

7. HANDLING AND STORAGE

Handling:

Avoid eye and repeated or prolonged skin contact. Avoid inhalation of vapour, mists or aerosols. Use with adequate ventilation. Always wash hands thoroughly after handling. Wash contaminated clothing and other protective equipment before storage or re-use. Do not dispose of material in sewers or waterways.

Storage:

Keep all containers tightly closed when not in use. Store containers in a cool place out of direct sunlight. Store away from incompatible materials such as strong acids and strong oxidising agents and foodstuffs.

Classified as a C1 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

This material is a Scheduled Poison S5 and must be stored, maintained and used in accordance with the relevant regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards:

No value has been assigned for this specific material by the National Occupational Health and Safety Commission (Worksafe Australia).

Exposure Limit:

In the absence of occupational exposure standards for this product, it is recommended that the following be adopted.

	TWA		STEL		Notices
	ppm	mg/m ³	ppm	mg/m ³	
Monoethylene glycol (vapour)	20	52	40	104	Skin
Monoethylene glycol (particulate)	-	10	-	-	Skin

As published by Safe Work Australia.

Exposure Standard (TWA) is the time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.

STEL (Short Term Exposure Limit) – the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour working life.

Skin Absorption Notice – absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

Engineering Controls:

Ensure ventilation is adequate to maintain air concentrations below Exposure Standard. If material is used in elevated temperatures or as an aerosol, use with local exhaust ventilation or while wearing respirator. Vapour heavier than air – prevent concentration in hollow slumps. DO NOT enter confined spaces where vapour may have collected. Keep containers closed when not in use.

Personal Protective Equipment:

Respiratory Protection: If inhalation risk exists wear a half face-piece filter respirator suitable for organic vapours/particulates meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Eye Protection: Always use safety glasses or a face shield when handling this product.

Skin/Body Protection: Wear overalls, safety shoes and impervious gloves. Available information suggests that gloves from neoprene, PVC, or natural rubber should be suitable for intermittent contact. However, due to variations in glove constructions and local conditions, final assessment should be made by the user.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Orange Liquid.

Odour:

Mild odour

pH:

8.4 for diluted product at 33% vol.

Ignition Temperature, degrees C:

Not Applicable

Flash Point, degrees C:

115 min (PMCC)

Flammable Limits % (Lower-Upper):

Not Applicable

Boiling Point/boiling range, degrees C:

Not Determined

Melting Point/melting range, degrees C:

Not Applicable

Pour Point, degrees C:

Not Determined

Relative Density at degrees C:

1.113 at 20.0°C

Vapour Pressure, kPa:

Not determined

Viscosity:

8 cSt at 40.0°C

Percent VOC:

Nil.

Vapour Density (Air = 1):

Not determined

Solubility in Water:

Complete

10. STABILITY AND REACTIVITY

Stability:

Stable under normal conditions of use.

Conditions to Avoid:

Excessive heat will lead to accelerated oxidative degradation.

Incompatibility (Materials to Avoid):

Avoid contact with strong oxidising agents.

Products Evolved When Subjected to Heat or Combustion:

Product does not decompose at ambient temperatures. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion of thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

No LD₅₀ data available for the final product. The toxicological information is based on data from a similar component or preparation.

Monoethylene Glycol:

Acute Health Effects:

Swallowed: Harmful if swallowed. Swallowing may cause initial symptoms similar to alcohol intoxication; progressing to vomit, headache, rapid respiratory and heart rate, lowered blood pressure, stupor, collapse and unconsciousness with convulsions. Death from respiratory arrest or cardiovascular collapse may follow. The mean lethal dose for a human is about 100 mL (3-4 ounces).

Eye: May be an eye irritant.

Skin: Contact with skin may result in irritation. Will have a degreasing action on the skin. Repeated or prolonged skin contact may lead to irritant contact dermatitis. Can be absorbed through the skin but not readily absorbed in toxic amounts.

Inhaled: Inhalation of vapours (from heating), mists or aerosols can produce respiratory irritation and may result in headaches, dizziness and possible nausea.

Chronic Health Effects:

This product may aggravate existing medical conditions. Individuals with medical conditions involving the following should take appropriate precautions when handling this product. Person with pre-existing skin disorders, eye problems, or impaired liver, kidney, or respiratory function may be more susceptible to the effects of exposure. Always wear appropriate protective equipment, as recommended by your industrial hygienist or safety personnel, when exposure to this product can occur.

Acute Lethal Effects (LD₅₀ LC₅₀):

Oral: LD₅₀ : 4700 mg/kg (rat).
LD₅₀ : 5500 mg/kg (dog).
LD₅₀ : 1650 mg/kg (cat).
Believed to be 1.4 ml/kg (human).
Inhalation: TCLo : 10000 mg/m³ (human).
Dermal: LD₅₀ : 9530 mg/kg (rabbit).

Irritation Index, Estimation of Irritation:

Skin: Mild irritant (rabbit, Draize). Irritation Index believed to be 0.5 – 1.00/8.0.
Eyes: Mild irritant (rabbit, Draize). Irritation Index believed to be 15.00 – 25.00/110
Sensitisation: Not determined.

Repeated Dose Toxicity:

High doses of ethylene glycol in rat and mice have resulted in reproductive and developmental toxicity following exposure by the oral and inhalation (respirable aerosol) routes. These particular data sets are not considered relevant to normal industrial use but do emphasise the need for care in handling. Data from animal and human studies to date do not provide evidence that exposure to ethylene glycol has mutagenic or carcinogenic effects.

12. ECOLOGICAL INFORMATION

Ecological testing on this product has not been conducted. The information is based on information for representative substances.

The potential to bioaccumulate has not been determined, however the majority of the components in this product would be expected to be inherently readily biodegradable.

Monoethylene Glycol:

Persistence and Degradability:

The substance is expected to be readily biodegradable according to the AS 4351 Part 2 test method.

Bioaccumulation:

Not determined.

Aquatic Toxicity and Other Data Relating to Ecotoxicity:

Aquatic species: LC₅₀ (96h) : > 100 ml/L

Non hazardous to aquatic organisms.

Mobility:

No data available.

13. DISPOSAL CONSIDERATIONS

Empty containers should be forwarded to an approved agent for recycling. Avoid unauthorised discharge to sewer. Material suitable for disposal for incineration or landfill through an approved agent.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN Number	None Allocated	UN Number	None Allocated	UN Number	None Allocated
Shipping Name	None Allocated	Shipping Name	None Allocated	Shipping Name	None Allocated
DG Class	None Allocated	DG Class	None Allocated	DG Class	None Allocated
Subsidiary Risk	C1 Combustible Liquid	Subsidiary Risk	C1 Combustible Liquid	Subsidiary Risk	C1 Combustible Liquid
Packaging Group	None Allocated	Packaging Group	None Allocated	Packaging Group	None Allocated
Hazchem Code	None Allocated	Hazchem Code	None Allocated	Hazchem Code	None Allocated
Poisons Schedule	S5	Poisons Schedule	S5	Poisons Schedule	S5

15. REGULATORY INFORMATION

Classified as a C1 Combustible Liquid for the purpose of storage and handling, in accordance with the requirements of AS1940. Refer to State Regulations for storage and transport requirements. Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code for transport by Road and Rail. This material is a S5 Scheduled Poison and must be stored, maintained and used in accordance with the relevant regulations.

16. OTHER INFORMATION

Contact Point: Chiron Chemicals Consulting & Services P/L Ph: + 61 3 9818 8000

This MSDS summarises at the date of issue our best knowledge of the health and safety hazard information of the product and in particular how to safely handle and use the product in the workplace. However, the Company makes no warranty or representation, express or implied, as to the accuracy of completeness of such information. Since Pty. Ltd. cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, review this MSDS in the context of how the user intends to handle and use the product in the workplace.

The provision of this Material Safety Data Sheet is not intended, of itself, to obviate the need for all users to satisfy themselves that the product described is suitable for their individual purposes and that the safety precautions and environmental advice are adequate for their individual purposes and situation. Further, it is the user's obligation to use this product safely and to comply with all applicable laws and regulations concerning the use of the product.

The Company accepts no responsibility for any injury, loss or damage, consequent upon any failure to follow the safety and other recommendations contained in this Material Safety Data Sheet, nor from any hazards inherent in the nature of the material, nor from any abnormal use of the material.

If clarification or further information is needed to ensure that an appropriate assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available upon request.