



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	FLEETGUARD DCA-4 LIQUID
Other means of identification	
MSDS number	LT16571
Product code	DCA 60L (1 Pint / 470 mL); DCA 65L (64 ounce / 1.89 L); DCA 70L (1 gallon / 3.785 L); DCA 75L (5 gallon / 18.9 L Pail); DCA 80L (55 gallon / 208 L Drum); 391412663 (Bulk)
Product use	Cooling system additive
Chemical family	Mixture of: Water; Mixture of inorganic compounds and organic acid.
Manufacturer	
Company name	Cummins Filtration
Address	1200 Fleetguard Road Cookeville, TN, U.S.A. 38506
Telephone	(931) 526 9551
Website	www.cumminsfiltration.com
E-Mail	fleetmaster.us@cummins.com
Supplier information	Refer to Manufacturer
Emergency phone number	Chemtrec 1-800-424-9300 (Within Continental U.S.); Chemtrec 703-527-3887 (Outside U.S.).

2. Hazard(s) Identification

Emergency overview	Blue liquid. Little or no odour. DANGER! Contains a strong oxidizer. Contact with combustible material may cause fire. Harmful if inhaled or swallowed. May cause respiratory irritation. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Possible severe eye irritation and tissue damage. May cause skin irritation. Contains material which may cause adverse blood system effects. Repeated or prolonged exposure may result in kidney effects.
Potential health effects	
Routes of exposure	
Routes of entry skin & eye	YES
Routes of entry skin absorption	YES
Routes of entry inhalation	YES
Routes of entry ingestion	YES
Target organs	Eyes, skin, respiratory system, central nervous system, blood system, liver, brain and kidneys.
Chronic effects	Chronic skin contact with low concentrations may cause dermatitis. Repeated or prolonged overexposure may cause anemia and kidney effects.
Most important symptoms/effects, acute and delayed	Causes skin irritation. Contact may cause redness, swelling and a painful sensation. Direct eye contact may produce severe irritation with possible eye damage. Symptoms may include severe pain, tearing, redness, swelling and blurred vision. May cause irreversible eye damage. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations and bleeding. Repeated or prolonged overexposure may cause anemia and kidney effects. Contains: Potassium nitrate; Sodium nitrite. Ingestion of large amounts of nitrites or nitrates may affect oxygen transport in the blood and blood system, causing methemoglobinemia. Methemoglobinemia, characterized by blue-black coloration of the lips, tongue, and the mucous membranes, with the skin becoming slate gray in color.



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Potential environmental effects Harmful to aquatic life. Avoid release to the environment. See ECOLOGICAL INFORMATION, Section 12.

3. Composition/information on ingredients

Mixture

Chemical name	CAS #	Percent
Potassium nitrate	7757-79-1	1.0 - 5.0
Sodium nitrite	7632-00-0	1.0 - 5.0
Dipotassium adipate	19147-16-1	1.0 - 5.0
Sodium tolytriazole	64665-57-2	1.0 - 3.0
Potassium silicate	1312-76-1	0.1 - 0.8
Sodium 2-mercaptobenzothiazole	2492-26-4	0.1 - 0.3

4. First Aid Measures

First aid procedures

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stopped, apply artificial respiration. Get medical attention.

Skin contact

Immediately flush skin with running water for at least 15 minutes, while removing contaminated clothing. Get medical attention. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with running water for at least 20 minutes. Seek immediate medical attention/advice.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to a person who is unconscious or is having convulsions. Get medical attention immediately.

Notes to physician

Immediate medical attention is required. Causes serious eye damage. Provide general supportive measures and treat symptomatically.

General Information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties

Not flammable by WHMIS criteria.

Extinguishing media

Suitable extinguishing media

Use water spray to fight fires.

Unsuitable extinguishing media

Use chemical extinguishing agents with caution. Some chemical extinguishing agents may react with this material.

Protection of firefighters

Specific hazards arising from the chemical

The pressure in sealed containers can increase under the influence of heat.

Protective equipment for firefighters

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Fire fighting equipment/instructions

Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.



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Explosion data

Sensitivity to static discharge Not expected to be sensitive to static discharge.

Sensitivity to mechanical impact Not expected to be sensitive to mechanical impact.

Hazardous combustion products Nitrogen oxides (NOx); Sodium oxides; Oxygen; Carbon oxides; phosphorus oxides; Sulphur oxides.

General fire hazards Not classified as flammable. However, substance may be considered a strong oxidizer. This product contains Sodium nitrite / Potassium nitrate, which enhance the burning rate of other materials. Contact with combustible material may cause fire.

6. Accidental Release Measures

Personal precautions Keep people away from and upwind of spill/leak. Restrict access to area until completion of clean-up. Wear appropriate protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions Prevent product from entering drains, sewers, waterways and soil.

Methods and materials for containment and cleaning up Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. For spilled liquids: absorb spill with inert, non-combustible material such as sand, then place into suitable containers. Pick up and transfer to properly labelled containers. Contaminated absorbent material may pose the same hazards as the spilled product. For large spills on surfaces other than pavement (e.g. soil or sand), spills may be handled by digging up and removing the affected surface and placing it in approved containers. Contact the proper local authorities.

Do not use combustible absorbents, such as sawdust.

Other information Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling Use only outdoors or in a well-ventilated area. Wear suitable protective equipment during handling. Avoid breathing mist or vapours. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and direct flame. Keep away from incompatibles. Keep away from combustible material. Keep containers tightly closed when not in use. Wash thoroughly after handling. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Storage Store in cool/well-ventilated place. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Do not store near any incompatible materials (see Section 10).

8. Exposure Controls / Personal Protection

Occupational exposure limits No exposure limits noted for the ingredient(s).

Biological limit values No biological exposure limits noted for the ingredient(s).

Engineering controls Use only outdoors or in a well-ventilated area. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Personal protective equipment

Eye / face protection Wear eye/face protection. Chemical splash goggles are recommended. A full face shield may also be necessary.

Skin protection Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Wear a chemically resistant apron and long sleeves when dispensing, to prevent skin contact.

Respiratory protection If airborne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with CSA Z94.4-02. Advice should be sought from respiratory protection specialists.

Hand protection Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

9. Physical and chemical properties

Appearance

Physical state Liquid.
Form Thin liquid.
Colour blue

Odour Little or no odour.

Odour threshold N/Av

pH 10.0 - 11.0

Melting point /freezing point N/Av

Initial boiling point and boiling range

100°C (212°F)

Flash point N/Av
 Cleveland Open Cup

Evaporation rate N/Av

Flammability (solid, gas) Not applicable.

Lower flammability/explosive limit N/Av

Upper flammability/explosive limit N/Av

Vapour pressure 760 mmHg @ 100°C (212°F)

Vapour density N/Av

Relative density 1.13 - 1.15

Solubility(ies)

Other solubility(ies) N/Av

Solubility (water) Complete

Partition coefficient (n-octanol/water) N/Av

Auto-ignition temperature N/Av

Decomposition temperature N/Av

Viscosity N/Av

Other information

Explosive properties Not explosive

Oxidizing properties This product was tested in accordance with Test O.2 - Test for Oxidizing liquids, in accordance with the UN Manual on Tests and Criteria. At a 1:1 ratio of sample/cellulose (2.5 g of the liquid and 2.5 g of dried cellulose) tested, the maximum pressure rise was < 2070 kPa (300 psi) or the pressure rise time was > the mean pressure rise time for the PGIII reference standard. The material is therefore, not considered to be an oxidizing liquid.

Specific gravity 1.13 - 1.15

VOC N/Av

Volatilities % N/Av

Other physical/chemical data No additional information.

10. Stability and reactivity

Reactivity Not normally reactive. However, substance may be considered a strong oxidizer. Contact with combustible material may cause fire.



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Chemical stability	Stable under the recommended storage and handling conditions prescribed.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use. Hazardous polymerization does not occur.
Conditions to avoid	Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials.
Incompatible materials	Strong acids, strong oxidizing agent (e.g. Chlorides, peroxides), reducing agents (e.g. cyanides, metal hydrides). Avoid organic materials. Combustible material.
Hazardous decomposition products	None known, refer to hazardous combustion products in Section 5.

11. Toxicological information

Toxicological data

Components	Species	Test Results
Potassium nitrate		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Inhalation</i>		
LC50	Rat	N/Av
<i>Oral</i>		
LD50	Rat	3540 mg/kg
Sodium nitrite		
Acute		
<i>Dermal</i>		
LD50	Rabbit	N/Av
<i>Inhalation</i>		
LC50	Rat	5.5 mg/L (dust)
<i>Oral</i>		
LD50	Rat	180 mg/kg
Dipotassium adipate		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5010 mg/kg (No mortality)
<i>Inhalation</i>		
LC50	Rat	> 7.7 mg/L (dust) (No mortality) (Read-across);
<i>Oral</i>		
LD50	Rat	5560 mg/kg (Read-across);
Sodium tolytriazole		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg (No mortality)
<i>Inhalation</i>		
LC50	Rat	N/Av
<i>Oral</i>		
LD50	Rat	735 - 1980 mg/kg (50% solution)
Potassium silicate		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 2.06 mg/L (dust) (No mortality)
<i>Oral</i>		



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LD50	Rat	5700 mg/kg
Sodium 2-mercaptobenzothiazole		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 7940 mg/kg
<i>inhalation</i>		
LC50	Rat	N/Av
<i>Oral</i>		
LD50	Rat	2100 mg/kg

Acute effects Causes skin irritation. Causes serious eye damage. Severe respiratory irritant. May cause severe irritation and corrosive damage in the mouth, throat and stomach. See data above for individual ingredient acute toxicity data.

Senitization Not expected to be a skin or respiratory sensitizer.

Chronic effects Chronic skin contact with low concentrations may cause dermatitis. Repeated or prolonged overexposure may cause anemia and kidney effects.

Carcinogenicity Not known to be carcinogenic. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Skin corrosion/irritation May cause moderate skin irritation.

Serious eye damage/irritation Causes eye damage.

Mutagenicity Contains no ingredient above reportable levels that is known to cause mutations in reproductive (germ) and/or non-reproductive cells (somatic).

Reproductive effects Not expected to cause reproductive effects.

Teratogenicity Not expected to be a teratogen.

Most important symptoms/effects, acute and delayed Causes skin irritation. Contact may cause redness, swelling and a painful sensation. Direct eye contact may produce severe irritation with possible eye damage. Symptoms may include severe pain, tearing, redness, swelling and blurred vision. May cause irreversible eye damage. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing and breathing difficulties. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations and bleeding. Repeated or prolonged overexposure may cause anemia and kidney effects. Contains: Potassium nitrate; Sodium nitrite. Ingestion of large amounts of nitrites or nitrates may affect oxygen transport in the blood and blood system, causing methemoglobinemia. Methemoglobinemia, characterized by blue-black coloration of the lips, tongue, and the mucous membranes, with the skin becoming slate gray in color.

Further information None known or reported by the manufacturer.

12. Ecological information

Ecotoxicity data:				
Components	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Potassium nitrate	7757-79-1	3000 mg/L (Bluegill sunfish)	N/Av	None.
Sodium nitrite	7632-00-0	0.54 mg/L (Rainbow trout)	N/Av	1
Dipotassium adipate	19147-16-1	> 1000 mg/L (Zebra fish) (Read-across);	N/Av	None.
Sodium tolytriazole	64665-57-2	25 mg/L (Rainbow trout)	N/Av	None.
Potassium silicate	1312-76-1	> 146 mg/L (Golden orfe)	N/Av	None.
Sodium 2-mercaptobenzothiazole	2492-26-4	0.73 mg/L (Rainbow trout)	N/Av	1