



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.
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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

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Components	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Potassium nitrate	7757-79-1	3581 mg/L (Daphnia magna)	N/Av	None.
Sodium nitrite	7632-00-0	15.4 mg/L (Daphnia magna)	N/Av	None.
Dipotassium adipate	19147-16-1	46 mg/L (Daphnia magna) (Read-across);	6.3 mg/L (Read-across);	
Sodium tolytriazole	64665-57-2	280 mg/L (Daphnia magna)	18.4 mg/L	None.
Potassium silicate	1312-76-1	> 146 mg/L/24hr (Daphnia magna)	N/Av	None.
Sodium 2-mercaptobenzothiazole	2492-26-4	19 mg/L (Daphnia magna)	0.08 mg/L (Read-across);	1

Components	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Potassium nitrate	7757-79-1	N/Av	N/Av	None.
Sodium nitrite	7632-00-0	≥ 100 mg/L/72hr (Green algae)	100 mg/L/72hr	None.
Dipotassium adipate	19147-16-1	59 mg/L/72hr (Read-across); (Green algae)	41 mg/L/72hr (Read-across);	None.
Sodium tolytriazole	64665-57-2	26.2 mg/L/72hr (Green algae)	10 mg/L/72hr	None.
Potassium silicate	1312-76-1	> 345.4 mg/L/72hr (Green algae) (Read-across);	N/Av	None.
Sodium 2-mercaptobenzothiazole	2492-26-4	0.4 mg/L/72hr (Green algae)	0.066 mg/L/72hr (Read-across);	1

Ecotoxicity Harmful to aquatic life. The product contains the following substances which are hazardous for the environment: Sodium nitrite; Sodium mercaptobenzothiazole. See above for individual ingredient ecotoxicity data.

Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

Aquatic toxicity No data is available on the product itself.

Persistence and degradability No data is available on the product itself. Contains the following chemicals which are not readily biodegradable: Potassium nitrate; Potassium silicate; Sodium mercaptobenzothiazole; Sodium tolytriazole. The following ingredients are considered to be readily biodegradable: sodium nitrite; Disodium adipate. Note: Although Sodium nitrite is an inorganic material, in the environment, bacteria oxidise nitrites to Nitrogen. Nitrites are reduced to nitrogen by and are therefore considered rapidly degradable.

Bioaccumulation / accumulation No data is available on the product itself. See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Potassium nitrate (CAS 7757-79-1)	- 0.79	N/Av
Sodium nitrite (CAS 7632-00-0)	- 3.7	3.162 (estimated)
Dipotassium adipate (CAS 19147-16-1)	- 4.2	3.162 (estimated)
Sodium tolytriazole (CAS 64665-57-2)	1.083	N/Av
Sodium 2-mercaptobenzothiazole (CAS 2492-26-4)	- 0.46	< 8 (common carp)

Mobility in soil The product itself has not been tested.

13. Disposal consideration

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of in accordance with local regulations.

Waste from residues / unused products Dispose in accordance with all applicable federal, provincial, state and local regulations.

Contaminated packaging Empty containers should be taken for local recycling or waste disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

TDG

Not regulated as dangerous goods

ICAO/IATA

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

General information Appropriate advice on safety must accompany the package. This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

15. Regulatory information

Canadian regulations Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and this MSDS contains all the information required by the CPR.

WHMIS status Controlled

WHMIS classification Class C (Oxidizing Material)
Class D2B (Materials Causing Other Toxic Effects, Toxic Material)

WHMIS labeling





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International Inventories

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

Components listed below are present on the following International Inventory lists:

<u>Ingredients</u>	<u>CAS #</u>	<u>European EINECS</u>	<u>Australia AICS</u>	<u>Philippines PICCS</u>	<u>Japan ENCS</u>	<u>Korea KECI/KECL</u>	<u>China IECS</u>	<u>New Zealand IOC</u>
Potassium nitrate	7757-79-1	231-818-8	Present	Present	(1)-449	KE-29163	Present	HSR001338
Sodium nitrite	7632-00-0	231-555-9	Present	Present	(1)-483	KE-31546	Present	HSR001286
Dipotassium adipate	19147-16-1	242-838-1	Not listed	Not listed	(2)-859	Not listed	Present	Not listed
Sodium tolytriazole	64665-57-2	265-004-9	Present	Present	(5)-3601	KE-23499	Present	May be used as a single component chemical under an appropriate group standard
Potassium silicate	1312-76-1	215-199-1	Present	Present	(1)-459	KE-31000	Present	HSR004068
Sodium 2-mercaptobenzothiazole	2492-26-4	219-660-8	Present	Present	(5)-243	KE-02725	Present	HSR004677

16. Other information, including date of preparation or last revision

NFPA Rating	0 - Minimal	1 - Slight	2 - Moderate	3 - Serious	
	<i>Health:</i> 2	<i>Flammability:</i> 0	<i>Instability:</i> 1	<i>Special Hazards:</i> None.	
HMIS Rating	* - Chronic hazard	0 - Minimal	1 - Slight	2 - Moderate	3 - Serious
	<i>Health:</i> *3	<i>Flammability:</i> 0	<i>Reactivity:</i> 1		
Issue date	06/01/2015				
Version #	1				
Legend	ACGIH: American Conference of Governmental Industrial Hygienists AICS: Australian Inventory of Chemical Substances CAS: Chemical Abstract Services CSA: Canadian Standards Association EC50: Effective Concentration 50%. EINECS: European Inventory of Existing Commercial chemical Substances ENCS: Existing and New Chemical Substances HSDB: Hazardous Substances Data Bank IARC: International Agency for Research on Cancer IBC: Intermediate Bulk Container IECSC: Inventory of Existing Chemical Substances IMDG: International Maritime Dangerous Goods IOC: Inventory of Chemicals KECI: Korean Existing Chemicals Inventory KECL: Korean Existing Chemicals List LC: Lethal Concentration LD: Lethal Dose N/Ap: Not Applicable N/Av: Not Available NIOSH: National Institute of Occupational Safety and Health NOEC: No observable effect concentration NTP: National Toxicology Program OECD: Organisation for Economic Co-operation and Development OSHA: Occupational Safety and Health Administration PEL: Permissible exposure limit PICCS: Philippine Inventory of Chemicals and Chemical Substances RTECS: Registry of Toxic Effects of Chemical Substances SDS: Safety Data Sheet STEL: Short Term Exposure Limit				



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TDG: Canadian Transportation of Dangerous Goods Act & Regulations

TLV: Threshold Limit Values

TSCA: Toxic Substance Control Act

TWA: Time Weighted Average

WHMIS: Workplace Hazardous Materials Identification System

Bibliography

1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2015.
2. International Agency for Research on Cancer Monographs, searched 2015.
3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2015 (Chempendium, HSDB and RTECs).
4. Material Safety Data Sheets from manufacturer.
5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2015.

Disclaimer

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