MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**RESTORE ALKALINE CLEANER - HEAVY DUTY**
Other means of identification	
MSDS number	LT16550
Product code	CC2601 (1 gallon / 3.785 L); CC2610 (1 gallon / 3.785 L); CC2611 (5 gallon / 18.9 L Pail); CC2612 (55 gallon / 208 L Drum)
Product use	Coolant system cleaner for removing silicate gel, oil contamination and solder bloom.
Chemical family	Mixture of: Water; Surfactants; Bases; Mixture of inorganic salts.
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	Clear liquid. Little or no odour. WARNING! May be harmful if inhaled or swallowed. May cause respiratory irritation. May cause severe irritation to 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	NO
Routes of entry inhalation	YES
Routes of entry ingestion	YES
Target organs	Eyes, skin, respiratory system, digestive system.
Chronic effects	Chronic skin contact with low concentrations may cause dermatitis. Repeated or prolonged exposure may result in 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. Severe respiratory irritant. Symptoms may include coughing, choking and wheezing. 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 exposure may result in kidney effects. Effects and symptoms of extreme overexposure may include acute kidney tubular necrosis (with symptoms of weakness, dehydration, reduced urination). Contains: Potassium nitrate. Ingestion of large quantities of nitrates may affect oxygen transport in the blood and blood system, causing methemoglobinemia. Methemoglobinema, characterized by blue-black coloration of the lips, tongue, and the mucous membranes, with the skin becoming slate gray in color.

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
Nonylphenol, ethoxylated	9016-45-9	10.0 - 20.0
Sodium xylenesulfonate	1300-72-7	5.0 - 10.0
Potassium nitrate	7757-79-1	1.0 - 5.0
Tetrapotassium pyrophosphate	7320-34-5	1.0 - 4.0
Sodium silicate	1344-09-8	1.0 - 4.0
Potassium hydroxide	1310-58-3	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, begin 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 media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable extinguishing media None known.

Protection of firefighters

Specific hazards arising from the chemical Contact with metals may release small amounts of flammable hydrogen gas. Vapours are heavier than air and collect in confined and low-lying areas. 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.

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	Carbon oxides; Sulphur oxides; Nitrogen oxides (NOx); Sodium oxides; phosphorus oxides.
General fire hazards	Not classified as flammable.

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. Contact the proper local authorities.
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 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

U.S. OSHA Exposure Limits (29 CFR 1910)

	Type	Value
Potassium hydroxide (CAS 1310-58-3)	TWA	2 mg/m³ (Ceiling) (final rule limit)

US. ACGIH Threshold Limit Values

	Type	Value
Potassium hydroxide (CAS 1310-58-3)	Ceiling	2 mg/m³

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 sufficient clothing to prevent skin contact.

Respiratory protection	If airbourne 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	Clear
Odour	Little or no odour.
Odour threshold	N/Av
pH	11.1
Melting point /freezing point	N/Av
Initial boiling point and boiling range	
	100°C (212°F)
Flash point	N/Ap
	N/Ap
Evaporation rate	N/Av
Flammability (solid, gas)	Not applicable.
Lower flammability/explosive limit	N/Ap
Upper flammability/explosive limit	N/Ap
Vapour pressure	N/Av
Vapour density	> 1 (Air = 1)
Relative density	1.08 - 1.12
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	None known.
Specific gravity	1.08 - 1.12
VOC	N/Av
Volatilities %	N/Av
Other physical/chemical data	No additional information.

10. Stability and reactivity

Reactivity	Not normally reactive. Contact with metals may release small amounts of flammable hydrogen gas.
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 bases, strong oxidizing agents (e.g. Chlorides, peroxides), reducing agents (e.g. cyanides, metal hydrides). Metals.
Hazardous decomposition products	None known, refer to hazardous combustion products in Section 5.

11. Toxicological information

Toxicological data

Components	Species	Test Results
Nonylphenol, ethoxylated		
Acute		
Dermal		
LD50	Rabbit	2080 - 2120 mg/kg
inhalation		
LC50	Rat	N/Av
Oral		
LD50	Rat	1310 mg/kg
Sodium xylenesulfonate		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg (No mortality)
inhalation		
LC50	Rat	> 6.41 mg/L (aerosol) (No mortality)
Oral		
LD50	Rat	7200 mg/kg
Potassium nitrate		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
inhalation		
LC50	Rat	N/Av
Oral		
LD50	Rat	3540 mg/kg
Tetrapotassium pyrophosphate		
Acute		
Dermal		
LD50	Rabbit	> 4640 mg/kg
inhalation		
LC50	Rat	N/Av
Oral		
LD50	Rat	2440 mg/kg
Sodium silicate		
Acute		
Dermal		
LD50	Rabbit	> 4640 mg/kg
inhalation		
LC50	Rat	> 2.06 mg/L (aerosol) (No mortality)
Oral		
LD50	Rat	1960 mg/kg

Potassium hydroxide		
Acute		
Dermal		
LD50	Rabbit	> 1260 mg/kg
inhalation		
LC50	Rat	N/Av
Oral		
LD50	Rat	205 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 exposure may result in 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.
Severe respiratory irritant. Symptoms may include coughing, choking and wheezing.
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 exposure may result in kidney effects. Effects and symptoms of extreme overexposure may include acute kidney tubular necrosis (with symptoms of weakness, dehydration, reduced urination).
Contains: Potassium nitrate. Ingestion of large quantities of nitrates may affect oxygen transport in the blood and blood system, causing methemoglobinemia. Methemoglobinema, 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
Nonylphenol, ethoxylated	9016-45-9	1.3 mg/L (Bluegill sunfish)	N/Av	None.
Sodium xylenesulfonate	1300-72-7	> 400 mg/L (Fathead minnow)	N/Av	None.
Potassium nitrate	7757-79-1	3000 mg/L (Bluegill sunfish)	N/Av	None.
Tetrapotassium pyrophosphate	7320-34-5	> 100 mg/L (Rainbow trout) (Read-across)	N/Av	None.
Sodium silicate	1344-09-8	1108 mg/L (Zebra fish)	N/Av	None.
Potassium hydroxide	1310-58-3	80 mg/L (Mosquito fish)	N/Av	None.

Components	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Nonylphenol, ethoxylated	9016-45-9	4.8 mg/L (Daphnia magna)	N/Av	None.
Sodium xylenesulfonate	1300-72-7	> 408 mg/L (Daphnia magna)	N/Av	None.
Potassium nitrate	7757-79-1	3581 mg/L (Daphnia magna)	N/Av	None.
Tetrapotassium pyrophosphate	7320-34-5	> 100 mg/L (Daphnia magna)	N/Av	None.
Sodium silicate	1344-09-8	1700 mg/L (Daphnia magna)	N/Av	None.
Potassium hydroxide	1310-58-3	56 mg/L Ceriodaphnia (water flea)	N/Av	None.

Components	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Nonylphenol, ethoxylated	9016-45-9	N/Av	N/Av	None.
Sodium xylenesulfonate	1300-72-7	230 mg/L/96hr (Green algae)	> 230 mg/L/96hr	None.
Potassium nitrate	7757-79-1	N/Av	N/Av	None.
Tetrapotassium pyrophosphate	7320-34-5	> 100 mg/L/72hr (Green algae) (Read-across)	> 100 mg/L/72hr (Read-across)	None.
Sodium silicate	1344-09-8	> 345.4 mg/L/72hr (Green algae)	N/Av	None.
Potassium hydroxide	1310-58-3	N/Av	N/Av	None.

Ecotoxicity

Harmful to aquatic life. The product contains the following substances which are hazardous for the environment: Nonylphenol, ethoxylated; potassium hydroxide.
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

None expected.

Persistence and degradability

No data is available on the product itself.
Contains the following chemicals which are not readily biodegradable: Potassium nitrate; Tetrapotassium pyrophosphate; Sodium silicate; potassium hydroxide.
The following ingredients are considered to be readily biodegradable: Nonylphenol, ethoxylated; Sodium xylenesulfonate.

Bioaccumulation / accumulation

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

Components	Partition coefficent n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Nonylphenol, ethoxylated (CAS 9016-45-9)	3.7	< 0.2 to < 1.4
Sodium xylenesulfonate (CAS 1300-72-7)	- 3.12	0.5
Potassium nitrate (CAS 7757-79-1)	- 0.79	N/Av

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 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 D2B (Materials Causing Other Toxic Effects, Toxic Material)

WHMIS labeling

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:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Nonylphenol, ethoxylated	9016-45-9	500-024-6	Present	Present	(7)-172	KE-26244	Present	HSR003054; HSNO Approval: HSR006598, HSR006618 (dilution)
Sodium xylenesulfonate	1300-72-7	215-090-9	Present	Present	(3)-1909	KE-11217	Present	HSR003382
Potassium nitrate	7757-79-1	231-818-8	Present	Present	(1)-449	KE-29163	Present	HSR001338

Tetrapotassium pyrophosphate	7320-34-5	230-785-7	Present	Present	(1)-452	KE-33662	Present	May be used as a single component chemical under an appropriate group standard
Sodium silicate	1344-09-8	215-687-4	Present	Present	(1)-508	KE-31002	Present	HSR003640
Potassium hydroxide	1310-58-3	215-181-3	Present	Present	(1)-369	KE-29139	Present	HSR001546

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

NFPA Rating : 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious

Health: 2 *Flammability:* 0 *Instability:* 1 *Special Hazards:* None.

HMIS Rating : * - Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious

Health: *2 *Flammability:* 0 *Reactivity:* 1

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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
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

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2. International Agency for Research on Cancer Monographs, searched 2015.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb 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.

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