SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **MASS AIR FLOW SENSOR CLEANER**

Product Code(s) : MAS7C

Recommended use of the chemical and restrictions on use

: Automotive - Cleaner (aerosol).
Restrictions on use: Not available.

Chemical family : Mixture of: Hydrocarbon; Propellant

Name, address, and telephone number of the supplier:

Radiator Specialty Co., of Canada

3-3055 Dundas St West, Suite 50
Mississauga, ON, Canada
L5L 3R8

Supplier's Telephone # : (905) 625-9117 (Mon.-Fri., 8 am - 4pm)

24 Hr. Emergency Tel # : Not available.

Name, address, and telephone number of the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Colourless liquid, contained in pressurized aerosol can. Hydrocarbon odour.

Most important hazards:
Extremely flammable aerosol. May be ignited by open flames and sparks. Contents under pressure. Container may explode if heated.
Aspiration hazard. Can enter the lungs and cause damage. Irritating to skin. Inhalation may cause central nervous system depression. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.
Very toxic to aquatic life with long lasting effects. Avoid release to the environment. See Section 12 for more environmental information.

This product is packaged and sold as a consumer product. The Hazardous Products Act (HPA) and Hazardous Products Regulations (HPR) do not apply to manufactured articles [Hazardous Products Act Section 12(i)]. The below WHMIS 2015 classification and labeling information is being provided for informational purposes.

This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).
Classification:
- Flammable aerosol - Category 1
- Gases under pressure - Liquefied gas
- Aspiration toxicity - Category 1
- Skin corrosion/irritation - Category 2
- Specific target organ toxicity, single exposure - Category 3 (Narcotic effects)

Label elements

Hazard pictogram(s)

Signal Word

DANGER!

Hazard statement(s)

Extremely flammable aerosol
Contains gas under pressure; may explode if heated.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.

SAFETY DATA SHEET

Precautionary statement(s)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No Smoking
Do not spray on an open flame or other ignition source.
Do not pierce or burn, even after use.
Avoid breathing mist or vapor.
Wash exposed skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:
Toxic fumes may be released during a fire. Mild respiratory irritant. Direct eye contact may cause slight or mild, transient irritation. May cause gastrointestinal irritation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical name	Common name and synonyms	CAS #	Concentration (% by weight)
Heptane, branched, cyclic and linear	Heptanes (mixture)	426260-76-6	**80.0 - 100.0**
Propane	Dimethylmethane Propyl hydride	74-98-6	**10.0 - 30.0**

The exact concentrations of the above listed chemicals are being withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

Ingestion : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.

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 has stopped, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact : IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before re-use.

Eye contact : Rinse immediately with plenty of water, also under the eyelids. If irritation or symptoms develop, seek medical attention.

SAFETY DATA SHEET

Most important symptoms and effects, both acute and delayed

: May be fatal if swallowed and enters airways. Aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.
Causes skin irritation. Contact may cause redness, swelling and a painful sensation.
Inhalation may cause headache, nausea and central nervous effects such as dizziness, coordination difficulties and unconsciousness. Mild respiratory irritant. May cause coughing and breathing difficulties.
Direct eye contact may cause slight or mild, transient irritation. Direct eye contact may cause slight redness.
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache).

Indication of any immediate medical attention and special treatment needed

: Immediate medical attention is required. Aspiration hazard if swallowed - can enter lungs and cause damage.
Provide general supportive measures and treat symptomatically.
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.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Dry chemical, foam, carbon dioxide and water fog.

Unsuitable extinguishing media

: Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

: Extremely flammable aerosol. May be ignited by open flames and sparks. This product is contained under pressure, and could explode when exposed to heat and flame. Vapours are heavier than air and collect in confined and low-lying areas. Material will float on water and can be re-ignited at the water's surface. Toxic fumes, gases or vapours may evolve on burning.

Hazardous combustion products

: Carbon oxides; Other unidentified organic compounds.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

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

Special fire-fighting procedures

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

: Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Wear appropriate personal protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Prevent product from entering drains, sewers, waterways and soil. Avoid release to the environment.

SAFETY DATA SHEET

Methods and material for containment and cleaning up

: Ventilate area of release. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so. Use only non-sparking tools and equipment in the clean-up process. For spilled liquids: absorb spill with inert, non-combustible material such as sand, then place into suitable containers. Do not use combustible absorbents, such as sawdust. Keep in properly labelled containers. Contaminated absorbent material may pose the same hazards as the spilled product. Notify the appropriate authorities as required.
Refer to Section 13 for disposal of contaminated material.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

: Use only outdoors or in a well-ventilated area. Wear suitable protective equipment during handling. Wear protective gloves. Avoid breathing mist or vapor. Avoid contact with skin, eyes and clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources - No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Keep away from incompatibles. Always replace cap after use. Wash thoroughly after handling.

Conditions for safe storage : Store in a cool, dry, well-ventilated area. Protect from sunlight and do not expose to temperatures exceeding 50 °C/122 °F. Store locked up. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking. Have appropriate fire extinguishers and spill clean-up equipment in or near storage area. Keep away from incompatibles.

Incompatible materials : Strong oxidizing agents; Halogenated compounds.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Heptane, branched, cyclic and linear	400 ppm (as 'n-Heptane')	500 ppm (as 'n-Heptane')	500 ppm (2000 mg/m³) (as 'n-Heptane')	N/Av
Propane	N/Av	N/Av	1000 ppm (1800 mg/m³)	N/Av

Exposure controls

Ventilation and engineering measures

: 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.

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.

Skin protection : Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Depending on conditions of use, an impervious apron should be worn. Wear sufficient clothing to prevent skin contact.

Eye / face protection : Wear as appropriate: Safety glasses with side shields; Tightly fitting safety goggles.

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

General hygiene considerations

: Avoid breathing mist or vapours. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice.

SAFETY DATA SHEET

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Colourless liquid, contained in pressurized aerosol can.
Odour : Hydrocarbon odour.
Odour threshold : N/Av
pH : N/Ap
Melting/Freezing point : Melting point: N/Av
Freezing point: - 91°C (- 132°F)
Initial boiling point and boiling range
: 98°C (208°F)
Flash point : - 104.4°C (- 156°F) (propellant)
Flashpoint (Method) : N/Av
Evaporation rate (BuAe = 1) : > 9 (butyl acetate = 1)
Flammability (solid, gas) : Not applicable.
Lower flammable limit (% by vol.)
: 2.1% (propellant)
Upper flammable limit (% by vol.)
: 9.5% (propellant)
Oxidizing properties : No oxidizing properties.
Explosive properties : Aerosols are sensitive to mechanical impact. Closed containers are contained under pressure and may explode if exposed to excess heat for a prolonged period of time.
Vapour pressure : N/Av
Vapour density : > 1 (Air = 1.0)
Relative density / Specific gravity
: Relative density: 684 kg/m³
Specific Gravity: 0.684
Solubility in water : Insoluble.
Other solubility(ies) : N/Av
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution
: N/Av
Auto-ignition temperature : N/Av
Decomposition temperature : N/Av
Viscosity : < 1 mm2/sec @ 40°C (104°F) (estimation)
Volatiles (% by weight) : N/Av
Volatile organic Compounds (VOC's)
: N/Av
Absolute pressure of container
: N/Av
Flame projection length : < 45.7 cm (< 18")
Other physical/chemical comments
: Flashback Observed: YES
Chemical heat of combustion: N/Av

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not normally reactive.
Chemical stability : Stable under the recommended storage and handling conditions prescribed.
Possibility of hazardous reactions
: Hazardous polymerization does not occur. No dangerous reaction known under conditions of normal use.
Conditions to avoid : Avoid heat and open flame. Do not use in areas without adequate ventilation. Protect from sunlight and do not expose to temperatures exceeding 50 °C/122 °F. Keep away from incompatibles.
Incompatible materials : Strong oxidizing agents; Halogenated compounds.
Hazardous decomposition products
: Not available.
In the event of fire: Refer to Section 5 for additional ‘Hazardous combustion products’.

SAFETY DATA SHEET

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation : YES
Routes of entry skin & eye : YES
Routes of entry Ingestion : YES
Routes of exposure skin absorption
: NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation
: Inhalation may cause headache, nausea and central nervous effects such as dizziness, coordination difficulties and unconsciousness. Mild respiratory irritant. May cause coughing and breathing difficulties. In extremely high concentrations, product may act as an asphyxiant and cause increased breathing and pulse rates, fatigue and unconsciousness.

Sign and symptoms ingestion
: May be fatal if swallowed and enters airways. Aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache).

Sign and symptoms skin : Causes skin irritation. Contact may cause redness, swelling and a painful sensation.

Sign and symptoms eyes : Direct eye contact may cause slight or mild, transient irritation. Direct eye contact may cause slight redness.

Potential Chronic Health Effects
: Prolonged skin contact may cause dermatitis (rash), characterized by red, dry, itching skin.

Mutagenicity : No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity : Not classifiable as a human carcinogen. No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity
: This product is not expected to cause reproductive or developmental effects.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects : This material is classified as hazardous under Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification:
Specific target organ toxicity, single exposure - Category 3. May cause drowsiness or dizziness.

According to the classification criteria of Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015), this product is not expected to cause specific target organ toxicity (STOT) through repeated exposures.

Medical conditions aggravated by overexposure
: Pre-existing skin, eye, respiratory and central nervous system disorders.

Synergistic materials : Not available.

Toxicological data : Not classified for acute toxicity based on available data. There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

SAFETY DATA SHEET

Chemical name	LC_{50} (4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
Heptane, branched, cyclic and linear	25,000 ppm (102.5 mg/L) (vapour) (Read-across)	> 15,000 mg/kg (Read-across)	> 2000 mg/kg (No mortality) (Read-across)
Propane	N/Av	N/Ap (gas)	N/Ap (gas)

Other important toxicological hazards

: Reports have associated repeated and prolonged occupational overexposure to various organic solvents with internal organ, brain and nervous system damage.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Very toxic to aquatic life with long lasting effects. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters. No data is available on the product itself. The product contains the following substances which are hazardous for the environment: Heptanes.

See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Heptane, branched, cyclic and linear	426260-76-6	5.738 mg/L (Rainbow trout) (QSAR) (Read-across)	1.284 mg/L/28-day (QSAR) (Read-across)	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap

Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Heptane, branched, cyclic and linear	426260-76-6	0.2 mg/L Chaetogammarus marinus (Water flea) (Read-across)	0.06 - 0.23 mg/L (Daphnia magna) (Read-across)	1
Propane	74-98-6	N/Ap	N/Ap	N/Ap

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Heptane, branched, cyclic and linear	426260-76-6	4.338 mg/L/72hr (Green algae) (QSAR) (Read-across)	0.97 mg/L/72hr (QSAR) (Read-across)	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap

Persistence and degradability

: The product itself has not been tested.
The following ingredients are considered to be readily biodegradable: Heptanes.

Bioaccumulation potential : The product itself has not been tested. See the following data for ingredient information.

Components	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Heptane, branched, cyclic and linear (CAS 426260-76-6)	4.66 (Read-across)	2000 (Read-across)

Mobility in soil : The product itself has not been tested.

SAFETY DATA SHEET

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8. This material and its container must be disposed of in a safe way.
Empty containers retain residue and can be dangerous. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Methods of Disposal : Dispose of in accordance with federal, provincial and local hazardous waste laws.

SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN1950	AEROSOLS	2.1	None	
TDG Additional information	May be shipped as LIMITED QUANTITY when transported in containers no larger than 1.0 Litre, in packages not exceeding 30 kg gross mass. Under the TDG, refer to Section 1.17 for additional exemption requirements, if shipping under this exemption.				

Special precautions for user : Appropriate advice on safety must accompany the package. Keep away from heat, sparks and open flame. - No smoking.

Environmental hazards : This product meets the criteria for an environmentally hazardous material according to the IMDG Code. See Section 12 for more environmental information.

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

: Not applicable.

SECTION 15 - REGULATORY INFORMATION

Canadian Information:

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

Canadian National Pollutant Release Inventory (NPRI): This product contains the following substances listed on the NPRI:
Propane (Part 5: Individual Substances)

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

US Federal Information:

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

International Information:

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

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	New Zealand IOC
Heptane, branched, cyclic and linear	426260-76-6	610-052-1	Not specifically listed.	Present	Not specifically listed.	2015-3-6412	Not specifically listed.	Not specifically listed.
Propane	74-98-6	200-827-9	Present	Present	(2)-3	KE-29258	Present	HSR001010

SECTION 16. OTHER INFORMATION

Legend : ACGIH: American Conference of Governmental Industrial Hygienists

SAFETY DATA SHEET

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
Inh: Inhalation
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
QSAR: Quantitative structure-activity relationship
RTECS: Registry of Toxic Effects of Chemical Substances
SCBA: Self-Contained Breathing Apparatus
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References :

1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2018.
2. International Agency for Research on Cancer Monographs, searched 2019.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2019 (Chempendium, HSDB and RTECs).
4. Material Safety Data Sheets from manufacturer.
5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2019.

Preparation Date (mm/dd/yyyy)

: 03/20/2019

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

Prepared for: Radiator Specialty Co. of Canada 3-3055 Dundas St West, Suite 50 Mississauga, ON, Canada, L5L 3R8 Telephone: 905-625-9117 (Mon. - Fri., 8 AM - 4 PM) Please direct all enquiries to Radiator Specialty.	
Prepared by: ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancecenter.com	

SAFETY DATA SHEET

DISCLAIMER

This Safety Data Sheet was prepared by ICC The Compliance Center Inc. using information provided by Radiator Specialty Co. of Canada and CCOHS' Web Information Service. The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. ICC The Compliance Center Inc and Radiator Specialty Co. of Canada expressly disclaim all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of ICC The Compliance Center Inc. and Radiator Specialty Co. of Canada.

END OF DOCUMENT