



SAFETY DATA SHEET

in accordance with 1907/2006/EC (REACH, as amended by 830/2015/EC) and 29 CFR 1910.1200

Revision date: 20 October 2015

Initial date of issue: 6 July 2007

SDS No. 314A-10

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

279 PCS (Aerosol)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Residue-free precision cleaner.

1.3. Details of the supplier of the safety data sheet

Company:

A.W. CHESTERTON COMPANY
860 Salem Street
Groveland, MA 01834-1507, USA
Tel.: +1 978-469-6446 Fax: +1 978-469-6785
(Mon. - Fri. 8:30 - 5:00 PM EST)
SDS requests: www.chesterton.com
E-mail (SDS questions): ProductMSDSs@chesterton.com
E-mail: customer.service@chesterton.com

Supplier:

1.4. Emergency telephone number

24 hours per day, 7 days per week
Call Infotrac: 1-800-535-5053
Outside N. America: +1 352-323-3500 (collect)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 [CLP] / 29 CFR 1910.1200 / WHMIS 2015 / GHS

Aerosol 3, H229

2.1.2. Classification according to WHMIS 1988

A: Compressed gases

2.1.3. Australian statement of hazardous nature

Not classified as hazardous according to criteria of Safe Work Australia.

2.1.4. Additional information

For full text of H-statements: see SECTIONS 2.2 and 16. None

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP] / 29 CFR 1910.1200 / WHMIS 2015 / GHS

Hazard pictograms: N/A

Signal word: Warning

Hazard statements: H229 Pressurized container: May burst if heated.

Precautionary statements: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251 Do not pierce or burn, even after use.
P410/412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.

Supplemental information: 0.8% by mass of the contents are flammable.

2.3. Other hazards

High vapor concentrations and direct contact are irritating to the eyes. Direct skin contact may cause skin irritation, frostbite and drying of the skin. Vapor in high concentrations may irritate the respiratory tract and cause drowsiness, unconsciousness, headache, dizziness and other central nervous system effects.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.2. Mixtures**

Hazardous Ingredients ¹	% Wt.	CAS No./ EC No.	REACH Reg. No.	CLP/GHS Classification
1,1,1,2-Tetrafluoroethane	20-40	811-97-2 212-377-0	01-211945 9374-33	Press. Gas, H280
Other ingredients: Methyl Nonfluoro Ethers	60-80	163702-07-6 163702-08-7/ 422-270-2	01-00000 16878-53	Not classified

For full text of H-statements: see SECTION 16.

¹ Classified according to: * 29 CFR 1910.1200, 1915, 1916, 1917, Mass. Right-to-Know Law (ch. 40, M.G.L..O. 111F), California Proposition 65
* 1272/2008/EC, REACH
* WHMIS 2015
* Safe Work Australia [NOHSC: 1008 (2004)]

SECTION 4: FIRST AID MEASURES**4.1. Description of first aid measures**

Inhalation: Remove to fresh air. Do not administer adrenaline (epinephrine). Contact physician.

Skin contact: If there is evidence of frostbite, bathe with lukewarm water. Wash skin with soap and water. Contact physician if irritation persists.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Ingestion: Do not induce vomiting. Contact physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

High vapor concentrations and direct contact are irritating to the eyes. Direct skin contact may cause skin irritation, frostbite and drying of the skin. Vapor in high concentrations may irritate the respiratory tract and cause drowsiness, unconsciousness, headache, dizziness and other central nervous system effects. Cardiac arrhythmia has been reported in animal studies.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptoms. Do not administer adrenaline (epinephrine).

SECTION 5: FIRE-FIGHTING MEASURES**5.1. Extinguishing media**

Suitable extinguishing media: Nonflammable. Use extinguisher appropriate to the surrounding fire.

Unsuitable extinguishing media: Not applicable

5.2. Special hazards arising from the substance or mixture

Pressurized containers, when heated, are a potential explosive hazard.

5.3. Advice for firefighters

Cool exposed containers with water. Recommend Firefighters wear self-contained breathing apparatus.

Flammability Classification: NFPA: Storage Level I; 16 CFR 1500.3 Non-flammable aerosol

HAZCHEM Emergency Action Code: not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Utilize exposure controls and personal protection as specified in Section 8.

6.2. Environmental Precautions

Keep out of sewers, streams and waterways.

6.3. Methods and material for containment and cleaning up

Evacuate area. Provide adequate ventilation. Contain spill to a small area. Pick up with absorbent material (sand, sawdust, clay, etc.) and place in a suitable container for disposal.

6.4. Reference to other sections

Refer to section 13 for disposal advice.

SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

Shake well before using. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No Smoking. Vapors are heavier than air and will collect in low areas. After handling, wash before eating, drinking or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C (120°F). Do not pierce or burn, even after use.

7.3. Specific end use(s)

No special precautions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters****Occupational exposure limit values**

Ingredients	OSHA PEL ¹		ACGIH TLV ²		UK WEL ³		AUSTRALIA ES ⁴	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1,1,1,2-Tetrafluoroethane**	–	–	–	–	1000	4240	1000	4240
Methyl Nonafluoro Ethers*	–	–	–	–	–	–	–	–

*American Industrial Hygiene Association (AIHA) recommended limit: 750 ppm.

**American Industrial Hygiene Association (AIHA) recommended limit: 1000 ppm (4240 mg/m³).

¹ United States Occupational Health & Safety Administration permissible exposure limits.

² American Conference of Governmental Industrial Hygienists threshold limit values.

³ EH40 Workplace exposure limits, Health & Safety Executive

⁴ Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003].

8.2. Exposure controls**8.2.1. Engineering measures**

Provide sufficient ventilation to keep the vapor concentrations below the exposure limits.

8.2.2. Individual protection measures

Respiratory protection: Not normally needed. In case of insufficient ventilation, utilize an approved organic vapor respirator (e.g., EN filter type A).

Protective gloves: Chemical resistant gloves (e.g., natural rubber, neoprene or PVC)

Eye and face protection: Safety goggles or face shield.

Other: Impervious gloves and clothing (e.g., natural rubber, neoprene or PVC) as necessary for repetitive, prolonged contact with liquid.

8.2.3. Environmental exposure controls

Refer to sections 6 and 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Physical state	liquid	Odour	faint odor
Colour	clear, colorless	Odour threshold	not determined
Initial boiling point	60°C (140°F)	Vapour pressure @ 20°C	170 mm Hg
Melting point	-135°C (-211°F)	% Aromatics by weight	0%
% Volatile (by volume)	100%	pH	not applicable
Flash point	None	Relative density	1.5 kg/l
Method	PM Closed Cup	Weight per volume	12.5 lbs/gal.
Viscosity	not determined	Coefficient (water/oil)	< 1
Autoignition temperature	405°C (761°F)	Vapour density (air=1)	> 1
Decomposition temperature	no data available	Rate of evaporation (ether=1)	< 1
Upper/lower flammability or explosive limits	7.4 (Lower explosion level)	Solubility in water	insoluble
Flammability (solid, gas)	not applicable	Oxidising properties	not applicable
Explosive properties	not applicable		

9.2. Other information

None

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

Refer to sections 10.3 and 10.5.

10.2. Chemical stability

Stable

10.3. Possibility of hazardous reactions

No dangerous reactions known under conditions of normal use.

10.4. Conditions to avoid

None

10.5. Incompatible materials

Strong bases, reactive metals and Strong oxidizers like liquid Chlorine and concentrated Oxygen.

10.6. Hazardous decomposition products

Hydrogen Fluoride, Carbonyl Halides, Halogen acids and other toxic fumes.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects**

Primary route of exposure under normal use: Inhalation, skin and eye contact. Personnel with eye and skin disorders, heart disease and respiratory disorders are generally aggravated by exposure.

Acute toxicity -**Oral:**

Based on available data on components, the classification criteria are not met.

Substance	Test	Result
Methyl Nonafluoro Ethers	LD50, rat	> 5000 mg/kg

Dermal:

No information available

Inhalation:

Based on available data on components, the classification criteria are not met. Vapor in high concentrations may irritate the respiratory tract and cause drowsiness, unconsciousness, headache, dizziness and other central nervous system effects. Cardiac arrhythmia has been reported in animal studies (NOEL: 50000 ppm; LOEL: 75000 ppm)

Substance	Test	Result
Methyl Nonafluoro Ethers	LC50, rat, 4 h	> 1000 mg/l (vapor)
1,1,1,2-Tetrafluoroethane	LC50, rat, 4 h	> 500000 ppm

Skin corrosion/irritation:

Direct skin contact may cause skin irritation, frostbite and drying of the skin.

Substance	Test	Result
Methyl Nonafluoro Ethers	Skin irritation, rabbit	Not irritating
1,1,1,2-Tetrafluoroethane	Skin irritation, rabbit	Not irritating

Serious eye damage/irritation:

High vapor concentrations and direct contact are irritating to the eyes.

Substance	Test	Result
Methyl Nonafluoro Ethers	Eye irritation, rabbit	Not irritating
1,1,1,2-Tetrafluoroethane	Eye irritation, rabbit	Not irritating

Respiratory or skin sensitisation:

Substance	Test	Result
Methyl Nonafluoro Ethers	Skin sensitization, guinea pig	Not sensitizing
1,1,1,2-Tetrafluoroethane	Skin irritation, guinea pig	Not sensitizing

Germ cell mutagenicity:

Based on available data on components, the classification criteria are not met.

Carcinogenicity:

As per 29 CFR 1910.1200 (Hazard Communication), this product contains no carcinogens as listed by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA) or Regulation (EC) No 1272/2008.

Reproductive toxicity:

Methyl Nonafluoro Ethers: NOAEL, oral, rat, male / female, 28 days = 1000 mg/kg/day; developmental NOAEL, inhalation, rat = 307 mg/l; NOAEL, inhalation, rat, 1 generation = 129 mg/l. 1,1,1,2-Tetrafluoroethane: based on available data, the classification criteria are not met.

STOT-single exposure:

Methyl Nonafluoro Ethers: LOAEL, inhalation, 10 min. = 913 mg/l. 1,1,1,2-Tetrafluoroethane: based on available data, the classification criteria are not met.

STOT-repeated exposure:

Methyl Nonafluoro Ethers: NOAEL, oral, rat, 28 days = 1000 mg/kg/day; NOAEL, inhalation, rat, 11/13 weeks = 129/155 mg/l. 1,1,1,2-Tetrafluoroethane: NOEL, rat = 40000 ppm.

Aspiration hazard:

Based on available data, the classification criteria are not met.

Other information:

None known

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. The information given below is based on a knowledge of the components and the ecotoxicology of similar substances.

12.1. Toxicity

Contains a greenhouse gas which may contribute to global warming. Methyl Nonafluoro Ethers: This product has insignificant toxicity to fathead minnows (96 Hr LC50 = >7.9 mg/l), waterfleas (48 Hr EC50 = >10 mg/l) and algae (96 Hr ErC50 = >8.9 mg/l) at its solubility limit. Ozone-depletion potential: none (0).

12.2. Persistence and degradability

Methyl Nonafluoro Ethers: atmospheric lifetime = approx. 4.1 years.

12.3. Bioaccumulative potential

1,1,1,2-Tetrafluoroethane: log Kow = 1.06, bioconcentration in aquatic organisms is not expected to be significant.

12.4. Mobility in soil

Liquid. Insoluble in water. This substance is highly volatile and will rapidly evaporate to the air if released into the environment. In determining environmental mobility, consider the product's physical and chemical properties (see Section 9).

12.5. Results of PBT and vPvB assessment

Not available

12.6. Other adverse effects

Contains a greenhouse gas which may contribute to global warming.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods**

Reclaim or recycle if possible. Incinerate absorbed material in an approved area. Do not incinerate sealed containers. Check local, state and national/federal regulations and comply with the most stringent requirement. This product is classified as a hazardous waste according to 2008/98/EC.

SECTION 14: TRANSPORT INFORMATION**14.1. UN number**

ADR/RID/ADN/IMDG/ICAO:	UN1950
TDG:	UN1950

US DOT:	UN1950
14.2. UN proper shipping name	
ICAO:	Aerosols, Non-Flammable
IMDG:	Aerosols
ADR/RID/ADN:	Aerosols, <i>asphyxiant</i>
TDG:	Aerosols, <i>non-flammable</i>
US DOT:	Aerosols, <i>non-flammable</i>
14.3. Transport hazard class(es)	
ADR/RID/ADN/IMDG/ICAO:	2.2
TDG:	2.2
US DOT:	2.2
14.4. Packing group	
ADR/RID/ADN/IMDG/ICAO:	NOT APPLICABLE
TDG:	NOT APPLICABLE
US DOT:	NOT APPLICABLE
14.5. Environmental hazards	
	NO ENVIRONMENTAL HAZARDS
14.6. Special precautions for user	
	NO SPECIAL PRECAUTIONS FOR USER
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	
	NOT APPLICABLE
14.8. Other information	
US DOT:	Shipped as Consumer Commodity ORM-D in packaging having a rated capacity gross weight of 66 lb. or less (49 CFR 173.306(i)). ERG NO. 126
IMDG:	EmS. F-D, S-U, Shipped as Limited Quantity
ADR:	Classification code 5A, Tunnel restriction code (E), Shipped as Limited Quantity

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****15.1.1. EU regulations**

Authorisations under Title VII: Not applicable

Restrictions under Title VIII: None

Other EU regulations: Directive 75/324/EEC on the approximation of the laws of the Member States relating to aerosol dispensers

15.1.2. National regulations**US EPA SARA TITLE III****312 Hazards:**

Immediate
Pressure Release

313 Chemicals:

None
TSCA: All chemical components are listed in the TSCA inventory.

Other national regulations: National implementation of the EC Directive referred to in section 15.1.1.
Additional Regulatory Information: Contains a greenhouse gas which may contribute to global warming. Do not vent to the atmosphere. Recover residual material.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms: ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE: Acute Toxicity Estimate
 BCF: Bioconcentration Factor
 CLP: Classification Labelling Packaging Regulation (1272/2008/EC)
 ES: Exposure Standard
 GHS: Globally Harmonized System
 ICAO: International Civil Aviation Organization
 IMDG: International Maritime Dangerous Goods
 LC50: Lethal Concentration to 50 % of a test population
 LD50: Lethal Dose to 50% of a test population
 LOEL: Lowest Observed Effect Level
 N/A: Not Applicable
 NA: Not Available
 NOAEL: No Observed Adverse Effect Level
 NOEL: No Observed Effect Level
 OECD: Organization for Economic Co-operation and Development
 PBT: Persistent, Bioaccumulative and Toxic substance
 (Q)SAR: Quantitative Structure-Activity Relationship
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (1907/2006/EC)
 RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
 SDS: Safety Data Sheet
 STEL: Short Term Exposure Limit
 STOT RE: Specific Target Organ Toxicity, Repeated Exposure
 STOT SE: Specific Target Organ Toxicity, Single Exposure
 TDG: Transportation of Dangerous Goods (Canada)
 US DOT: United States Department of Transportation
 vPvB: very Persistent and very Bioaccumulative substance
 WEL: Workplace Exposure Limit
 WHMIS: Workplace Hazardous Materials Information System
 Other abbreviations and acronyms can be looked up at www.wikipedia.org.

Key literature references and sources for data: Commission de la santé et de la sécurité du travail (CSST)
 Chemical Classification and Information Database (CCID)
 European Chemicals Agency (ECHA) - Information on Chemicals
 Hazardous Substances Information System (HSIS)
 National Institute of Technology and Evaluation (NITE)
 Swedish Chemicals Agency (KEMI)
 U.S. National Library of Medicine Toxicology Data Network (TOXNET)

Procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008 [CLP] / GHS:

Classification	Classification procedure
Aerosol 3, H229	Aerosol dispenser

Relevant H-statements: H229: Pressurized container: May burst if heated.
 H280: Contains gas under pressure; may explode if heated.

Hazard pictogram names: Not applicable

Changes to the SDS in this revision: Sections 2.1, 3, 4.1, 8.1, 11, 12.3, 15.1.2.

Revision date: 20 October 2015

Further information: None

This information is based solely on data provided by suppliers of the materials used, not on the mixture itself. No warranty is expressed or implied regarding the suitability of the product for the user's particular purpose. The user must make their own determination as to suitability.