

SAFETY DATA SHEET

in accordance with 29 CFR 1910.1200, WHMIS 2022 and Safe Work Australia

Revision date: 17 July 2024 **Date of previous issue:** 25 February 2022 **SDS No.** 384A-15

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

1.1. Product identifier

296 Electro Contact Cleaner (Aerosol)

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

Relevant identified uses: Cleaning product for removal of grease, flux and other soils from electrical equipment or electronics.

Uses advised against: Uses other than those listed above.

Reason why uses advised against: Global warming usage restrictions.

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
(Mon. - Fri. 8:30 - 5:00 PM EST)
SDS requests: www.chesterton.com
E-mail (SDS questions): ProductSDSs@chesterton.com
E-mail: customer.service@chesterton.com

Supplier:

Canada: A.W. Chesterton Company Ltd., 889 Fraser Drive,
Unit 105, Burlington, Ontario L7L 4X8 – Tel. 905-335-5055

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)
NSW Poisons Information Centre (Australia): 13 11 26

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. Classification according to 29 CFR 1910.1200 / WHMIS 2022 / Safe Work Australia / GHS

Aerosol, Category 3, H229
Skin irritation, Category 2, H315
Eye irritation, Category 2A, H319
Specific target organ toxicity – single exposure, Category 3, H335, H336
Reproductive toxicity, Category 2, H361f
Specific target organ toxicity – repeated exposure, Category 1, H373 (nervous system)
Aspiration hazard, Category 1, H304
Hazardous to the aquatic environment, Chronic, Category 3, H412

2.1.2. Additional information

For full text of H-statements: see SECTIONS 2.2 and 16.

2.2. Label elements

Labeling according to 29 CFR 1910.1200 / WHMIS 2022 / Safe Work Australia / GHS

Hazard pictograms:



Signal word:

Danger

Hazard statements:	H229	Pressurized container: May burst if heated.
	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H335	May cause respiratory irritation.
	H336	May cause drowsiness or dizziness.
	H361	Suspected of damaging fertility.
	H373	May cause damage to the nervous system through prolonged or repeated exposure.
	H304	May be fatal if swallowed and enters airways.
	H412	Harmful to aquatic life with long lasting effects.
	Precautionary statements:	P201
P202		Do not handle until all safety precautions have been read and understood.
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.
P260		Do not breathe vapours.
P264		Wash hands thoroughly after handling.
P271		Use only outdoors or in a well-ventilated area.
P273		Avoid release to the environment.
P280		Wear protective gloves, protective clothing and eye/face protection.
P302/352		IF ON SKIN: Wash with plenty of soap and water.
P332/313		If skin irritation occurs: Get medical advice/attention.
P304/340		IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312		Call a POISON CENTER or doctor if you feel unwell.
P305/351/338		IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337/313		If eye irritation persists: Get medical advice/attention.
P301/310		IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P331		Do NOT induce vomiting.
P362/364	Take off contaminated clothing and wash it before reuse.	
P403	Store in a well-ventilated place.	
P410/412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.	
P501	Dispose of contents/container to an approved waste disposal plant.	

Supplemental information: None

2.3. Other hazards

None known

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hazardous Ingredients ¹	% Wt.	CAS No.	GHS Classification
1,1,1,2-Tetrafluoroethane	30-40	811-97-2	Press. Gas (Liq.), H280 Simple Asphyxiant (US/Can.)
1,1,2,2-Tetrafluoroethyl-2,2,2-trifluoroethylether	30-40	406-78-0	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
trans-1,2-Dichloroethylene	10-20	156-60-5	Flam. Liq. 2, H225 Eye Irrit. 2A, H319 Acute Tox. 4, H332 STOT SE 3, H336 Aquatic Chronic 3, H412
Ethanol	5-10	64-17-5	Flam. Liq. 2, H225 Eye Irrit. 2A, H319
n-Hexane	1-5	110-54-3	Flam. Liq. 2, H225 Asp. Tox. 1, H304 Skin Irrit. 2, H315 STOT SE 3, H336 Repr. 2, H361f STOT RE 2, H373 (C ≥ 5 %, nervous system) Aquatic Chronic 2, H411

For full text of H-statements: see SECTIONS 2.2 and 16.

¹ Classified according to: 29 CFR 1910.1200, 1915, 1916, 1917, Mass. Right-to-Know Law (ch. 40, M.G.L..O. 111F), WHMIS 2022, Safe Work Australia, GHS

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation: Remove to fresh air. If not breathing, administer artificial respiration. Do not administer adrenaline (epinephrine). Contact physician.

Skin contact: Wash skin with soap and water. Remove contaminated clothing and wash before reuse. 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 for at least 10 minutes. Contact physician if irritation persists.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. If person is conscious, rinse mouth with water. Contact physician immediately.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. Avoid contact with the product while providing aid to the victim. In case of insufficient ventilation, wear suitable respiratory equipment. See section 8.2.2 for recommendations on personal protective equipment.

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

Causes skin irritation. Causes serious eye irritation. Vapor 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. Aspiration into the lungs may cause chemical pneumonitis or pulmonary oedema.

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: Dry chemical, carbon dioxide, foam, water spray or water fog

Unsuitable extinguishing media: Water jets

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Oxides of Carbon, Hydrogen Fluoride, Hydrogen Chloride, Carbonyl Halides, halogenated compounds.

Other hazards: 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.

Australian HAZCHEM Emergency Action Code: 2 Y

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. Cover spill with non-combustible absorbent material (e.g., sand, clay, etc.) and scoop up and transfer to 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. Avoid breathing vapours. Vapors are heavier than air and will collect in low areas. Avoid contact with skin, eyes or clothing. Utilize exposure controls and personal protection as specified in Section 8. Wash thoroughly after handling.

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. Store in a well-ventilated place.

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		AUSTRALIA ES ³	
	ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
1,1,1,2-Tetrafluoroethane*	N/A	N/A	N/A	N/A	1,000	4,240
1,1,2,2-Tetrafluoroethyl-2,2,2-trifluoroethylether	N/A	N/A	N/A	N/A	N/A	N/A
trans-1,2-Dichloroethylene	200	790	200	N/A	200	793
Ethanol	1,000	1,900	STEL: 1,000	N/A	1,000	1,880
n-Hexane	500	1,800	50 (skin)	N/A	20	72

*American Industrial Hygiene Association (AIHA) recommended limit: 1,000 ppm (4,240 mg/m³).

¹ United States Occupational Health & Safety Administration permissible exposure limits

² American Conference of Governmental Industrial Hygienists threshold limit values

³ Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants

Biological limit values

n-Hexane:

Control parameter	Biological specimen	Sampling Time	Limit value	Basis	Notes
2,5-Hexanedione	Urine	End of shift	0.5 mg/l	ACGIH	-

8.2. Exposure controls

8.2.1. Engineering measures

Use only outdoors or in a well-ventilated area.

8.2.2. Individual protection measures

Respiratory protection: If exposure limits are exceeded, use an approved organic vapor respirator.

Protective gloves: Chemical resistant gloves (e.g. Viton*, neoprene, nitrile). *Trademark of The Chemours Company FC, LLC.

Eye and face protection: Safety glasses with side-shields, safety goggles or face shield.

Other: Impervious clothing as necessary for repetitive, prolonged skin contact.

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	pH	not applicable
Colour	clear, colorless	Kinematic viscosity	not determined
Odour	halogenated solvent	Solubility in water	insoluble
Odour threshold	not determined	Partition coefficient	not applicable
		n-octanol/water (log value)	
Boiling point or range	not determined	Vapour pressure @ 20°C	not determined
Melting point/freezing point	not determined	Density and/or relative density	1.285 kg/l
% Volatile (by volume)	100%	Weight per volume	10.72 lbs/gal.
Flammability	non-flammable aerosol	Vapour density (air=1)	not determined
Lower/upper flammability or explosion limits	not determined	Rate of evaporation (ether=1)	> 1
Flash point	not applicable	% Aromatics by weight	0%
Method	not applicable	Particle characteristics	not applicable
Autoignition temperature	not determined	Explosive properties	not determined
Decomposition temperature	not determined	Oxidising properties	not determined

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

Temperatures above 50°C (120°F).

10.5. Incompatible materials

Strong acids and alkalis. Finely divided powdered metals such as Aluminum, Magnesium or Zinc. Strong oxidizing agents.

10.6. Hazardous decomposition products

Oxides of Carbon, Hydrogen Fluoride, Hydrogen Chloride, Carbonyl Halides, halogenated compounds.

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:**

Substance	Test	Result
trans-1,2-Dichloroethylene	LD50, rat	> 5,000 mg/kg
Ethanol	LD50, rat	6,200 mg/kg
n-Hexane	LD50, rat	> 5,000 mg/kg

Dermal:

Substance	Test	Result
trans-1,2-Dichloroethylene	LD50, rabbit	> 5,000 mg/kg
Ethanol	LDLo, rabbit	20,000 mg/kg
n-Hexane	LD50, rabbit	> 2,000 mg/kg

Inhalation:

Based on available data on components, the classification criteria are not met. ATE-mix: 5 mg/l. 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: 50,000 ppm; LOEL: 75,000 ppm)

Substance	Test	Result
1,1,1,2-Tetrafluoroethane	LC50, rat, 4 h	567,000 ppm
trans-1,2-Dichloroethylene	LC50, rat, 4 h	24,100 ppm
Ethanol	LC50, rat, 4 h	116.9 mg/l
n-Hexane	LC50, rat, 4 h	48,000 ppm

Skin corrosion/irritation:

Causes skin irritation.

Substance	Test	Result
1,1,1,2-Tetrafluoroethane	Skin irritation, rabbit	Slightly irritating
1,1,1,2-Tetrafluoroethane	Skin irritation, human	Not irritating

Serious eye damage/irritation:

Causes serious eye irritation.

Substance	Test	Result
1,1,1,2-Tetrafluoroethane	Eye irritation, rabbit	Slightly irritating
1,1,1,2-Tetrafluoroethane	Eye irritation, human	Not irritating

Respiratory or skin sensitisation:

Substance	Test	Result
1,1,1,2-Tetrafluoroethane	Skin irritation, guinea pig	Not sensitizing

Germ cell mutagenicity:

1,1,1,2-Tetrafluoroethane: based on available data, the classification criteria are not met.

Carcinogenicity:

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 the European Chemicals Agency (ECHA).

Reproductive toxicity:

Suspected of damaging fertility. 1,1,1,2-Tetrafluoroethane, Ethanol: based on available data, the classification criteria are not met.

STOT – single exposure:

May cause respiratory irritation. May cause drowsiness or dizziness.

STOT – repeated exposure:

May cause damage to the nervous system through prolonged or repeated exposure. 1,1,1,2-Tetrafluoroethane: NOEL, rat = 40,000 ppm. Ethanol: based on available data, the classification criteria are not met.

Aspiration hazard:

Aspiration into the lungs may cause chemical pneumonitis or pulmonary oedema.

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

Harmful to aquatic life with long lasting effects. trans-1,2-Dichloroethylene: 48 h EC50 (for daphnia) 220-290 mg/l; NOEC (Daphnia magna, 48 h) < 100 mg/l. n-Hexane: 48 h EC50 (for daphnia) 3.88 mg/l. Contains a greenhouse gas which may contribute to global warming. Ozone-depletion potential: none (0).

12.2. Persistence and degradability

1,1,1,2-Tetrafluoroethane: oxidizes slowly by photochemical reactions in air; atmospheric half-life: 1,878 days; atmospheric lifetime: 12.5 - 24 years. Ethanol: readily biodegradable; oxidizes rapidly by photochemical reactions in air. n-Hexane: readily biodegradable.

12.3. Bioaccumulative potential

1,1,1,2-Tetrafluoroethane: log Kow = 1.06, not expected to bioaccumulate. Ethanol: low potential for bioaccumulation (log Kow = -0.31). n-Hexane: low potential for bioaccumulation (log Kow = 3.9).

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). Ethanol: expected to have very high mobility in soils (Koc = 2.75).

12.5. Endocrine disrupting properties

None known

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 with a properly licensed facility. Do not incinerate sealed containers. Check local, state and national/federal regulations and comply with the most stringent requirement.

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

ADG/ADR/RID/ADN/IMDG/ICAO: UN1950
TDG: UN1950
US DOT: UN1950

14.2. UN proper shipping name

ICAO: AEROSOLS, NON-FLAMMABLE
ADG/IMDG: AEROSOLS
ADR/RID/ADN: AEROSOLS, ASPHYXIAN
TDG: AEROSOLS, NON-FLAMMABLE
US DOT: AEROSOLS, NON-FLAMMABLE

14.3. Transport hazard class(es)

ADG/ADR/RID/ADN/IMDG/ICAO: 2.2
TDG: 2.2
US DOT: 2.2

14.4. Packing group

ADG/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. Maritime transport in bulk according to IMO instruments

NOT APPLICABLE

14.8. Other information

US DOT: SHIPPED AS LIMITED QUANTITY IN PACKAGING HAVING A RATED CAPACITY GROSS WEIGHT OF 66 LB. OR LESS (49 CFR 173.306(A),(3),(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
ADG HAZCHEM CODE: N/A **HIN:** (1)

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****15.1.1. National regulations****US EPA SARA TITLE III****312 Hazards:****Chemicals subject to reporting requirements of Section 313 of EPCRA and of 40 CFR 372:**

Gases under pressure	n-Hexane	1-5%
Skin irritation		
Eye irritation		
Specific target organ toxicity – single exposure		
Reproductive toxicity		
Specific target organ toxicity – repeated exposure		
Aspiration hazard		

TSCA: All chemical components are listed in the TSCA inventory.

Other national regulations: Contains a greenhouse gas which may contribute to global warming. Do not vent to the atmosphere. Recover residual material.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms: ADG: Australian Dangerous Goods Code
 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
 cATpE: Converted Acute Toxicity point Estimate
 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
 NOEC: No Observed Effect Concentration
 NOEL: No Observed Effect Level
 OECD: Organization for Economic Co-operation and Development
 (Q)SAR: Quantitative Structure-Activity Relationship
 REL: Recommended Exposure Limit
 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)
 TWA: Time Weighted Average
 US DOT: United States Department of Transportation
 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 des normes, de l'équité, de la santé et de la sécurité du travail (CNESST)
 Chemical Classification and Information Database (CCID)
 European Chemicals Agency (ECHA) - Information on Chemicals
 Hazardous Chemical Information System (HCIS)
 National Institute of Technology and Evaluation (NITE)
 U.S. National Library of Medicine Toxicology Data Network (TOXNET)

Procedure used to derive the classification for mixtures according to GHS:

Classification	Classification procedure
Aerosol 3, H229	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2A, H319	Calculation method
STOT SE 3, H335, H336	Calculation method
Repr. 2, H361f	Calculation method
STOT RE 2, H373	Calculation method
Asp. Tox. 1, H304	On basis of components
Aquatic Chronic 3, H4123	Calculation method

Relevant H-statements: H225: Highly flammable liquid and vapour.
 H229: Pressurized container: May burst if heated.
 H280: Contains gas under pressure; may explode if heated.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H332: Harmful if inhaled.
 H335: May cause respiratory irritation.
 H336: May cause drowsiness or dizziness.
 H361f: Suspected of damaging fertility.
 H373: May cause damage to organs through prolonged or repeated exposure.
 H411: Toxic to aquatic life with long lasting effects.
 H412: Harmful to aquatic life with long lasting effects.

Hazard pictogram names: Health hazard, exclamation mark

Further information: None

Date of last revision: 17 July 2024

Changes to the SDS in this revision: Complete change to represent new formulation.

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.