Safety Data Sheet
TRICHLOROEHTYLENE

SECTION 1: Identification

1.1 GHS Product identifier

Product name	Trichloroethylene
Brand	Caseway
Substance name	TRICHLOROETHYLENE
EC no.	201-167-4
CAS no.	79-01-6
Index no.	602-027-00-9

1.2 Other means of identification

Synonym(s): Ethene, trichloro-; Trichloroethylene; TRICHLOROETHYLENE
SDS No: CIP-032
UN/ID No: UN1710

1.3 Recommended use of the chemical and restrictions on use

USES: Degreaser
Restrictions on Use: FDA has prohibited its used in food, drugs, and cosmetics.

1.4 Supplier's details

Name	Caseway Industrial Products, Inc.
Address	3487 Highland Drive Bay City MI 48706 United States
Telephone	19893919992
Fax	19893919994
email	support@casewayproducts.com

1.5 Emergency phone number

INFOTRAC (Contract: 106140)
North America: 1-800-535-5053
International: 1-352-323-3500

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Long-term hazards to the aquatic environment, Cat. 3
- Eye damage/irritation, Cat. 2A
- Skin corrosion/irritation, Cat. 2
- Specific target organ toxicity (single exposure), Cat. 3
- Germ cell mutagenicity, Cat. 2
- Carcinogenicity, Cat. 1B
- Sensitization, skin, Cat. 1

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word **Danger**

Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H341	Suspected of causing genetic defects
H350	May cause cancer

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name	CAS No.	EC No.	Index No.	Concentration (weight)
Trichloroethylene	79-01-6	201-167-4	602-027-00-9	90 - 100

Formula	C2HCl3
Molecular weight	131.4
Other names / synonyms	Ethene, trichloro-; Trichloroethylene; TRICHLOROETHYLENE

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Show this safety data sheet to the doctor in attendance. Do not leave victim unattended.
If inhaled	IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. Call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid

	of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
In case of skin contact	IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water for at least 15 minutes. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. Transport the victim to a hospital for treatment after washing the affected areas.
In case of eye contact	First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
If swallowed	DO NOT INDUCE VOMITING. Volatile chemicals have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems. Keep respiratory tract clear. Call a hospital or poison control center. Transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body.
Personal protective equipment for first-aid responders	Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.

4.2 Most important symptoms/effects, acute and delayed
May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reactions may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No data available.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Dry chemical. Carbon dioxide (CO2). Foam.

Unsuitable extinguishing media: High volume water jet.

5.2 Specific hazards arising from the chemical
Thermal decomposition can lead to the release of irritating gases and vapors. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

5.3 Special protective actions for fire-fighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors. Do not allow run-off from firefighting to enter drains or water courses. Use water spray to cool fully closed containers.

Further information
Collect contaminated fire extinguishing water separately. Fire residues and contaminated fire water must be disposed of in accordance with local regulations.

Hazardous Combustion Products: Chlorine. Phosgene. Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen chloride gas.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear personal protective equipment (gloves, clothing, shoes, respirator). Ensure adequate ventilation. Keep unnecessary personnel out of the area.

6.2 Environmental precautions
Prevent product from entering drains. If the product contaminates rivers, lakes, or drains inform the respective authorities.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable closed container for later disposal.

Reference to other sections
Protective Equipment: Section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid formation of aerosol. Do not breath vapors/mist/fumes. Avoid contact with skin and eyes. Smoking, eating, and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust ventilation hood. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this substance is being used. Wash hands, forearms, and face thoroughly after handling. Wash contaminated clothing before reuse.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a cool, dry, well-ventilated. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Protect from light. Store locked up.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Trichloroethylene (CAS: 79-01-6)
PEL-TWA (Inhalation): 100 ppm (537 mg/m3) (OSHA)
PEL-C (Inhalation): 200 ppm; 300 ppm (peak), for a single time period up to 5 min in any 2 hours (OSHA)

TLV®-TWA (Inhalation): 10 ppm [2006] (ACGIH)
TLV®-STEL (Inhalation): 25 ppm [2006] (ACGIH)

PEL-TWA (Inhalation): 25 ppm (135 mg/m3) (Cal/OSHA)
PEL-STEL (Inhalation): 100 ppm (537 mg/m3) (Cal/OSHA)
PEL-C (Inhalation): 300 ppm (Cal/OSHA)

IDLH (Inhalation): 1000 ppm (NIOSH)

8.2 Appropriate engineering controls
If user operations generate dust, fumes, gas, mists or vapor, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminates below any recommended or statutory limits. Ensure that eyewash stations and safety showers are close to the workstation location.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases, or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. In case of high risk, wear full face shield.

Skin protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

Body protection
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the respirator.

Thermal hazards
No data available.

Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements or environmental legislation. In some cases, fume scrubbers, filters, or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Clear liquid.
Color	Clear, colorless
Odor	ether-like
Odor threshold	No data available.
pH	9 - 10 @ 20-25°C (68-77 °F)
Melting point/freezing point	-86.8° - -84.8 °C (-124.2 - -120.6 °F)
Boiling point or initial boiling point and boiling range	84 - 88 °C (183 - 190 °F)
Flash point	Not applicable.
Evaporation rate	No data available.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	LEL: 7.8% (V) - UEL: 10.5% (V)
Vapor pressure	57.8 mmHg @ 20°C (68 °F)
Relative vapor density	4.5 @ 20 - 25 °C (68 - 77 °F) (AIR=1.0)
Density and/or relative density	1.463 - 1.470 @ 20°C (68°F) (H2O=1)
Solubility	No data available.
Partition coefficient n-octanol/water (log value)	2.29 - 5
Auto-ignition temperature	410°C
Decomposition temperature	No data available.
Kinematic viscosity	0.376 mm2/s

Further safety characteristics (supplemental)
Dynamic Viscosity: 0.55 mpa.s @ 25°C (77 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity
No dangerous reaction known under normal conditions of use.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions

No hazards to be specifically mentioned.

10.4 Conditions to avoid
Keep away from heat, flame, sparks, and other sources of ignition.

10.5 Incompatible materials
Strong oxidizing agents. Alkalis. Acids. Magnesium.

10.6 Hazardous decomposition products
Carbon dioxide. Carbon monoxide. Chlorine compounds. Phosgene.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
LC50 Inhalation (Rat): 140700 mg/m3 (1 hr)
LD50 Dermal (Rabbit): >20 g/kg
LD50 Oral (Rat): 4920 mg/kg

Skin corrosion/irritation
Remarks: Irritating to skin.
Species: Rabbit
Exposure time: 4 h
Result: Irritating to skin.

Serious eye damage/irritation
Remarks: Irritating to eyes.
Species: Rabbit
Result: Irritating to eyes.

Respiratory or skin sensitization
Remarks: Causes sensitization.
Test type: lymph node assay
Species: Mouse
Result: This product is a skin sensitizer, sub-category 1B.

Germ cell mutagenicity
Germ cell mutagenicity - Assessment: In vitro tests showed mutagenic effects

Genotoxicity in vivo
Species: Mouse
Application Route: inhalation (vapour)
Exposure time: 12 d
Dose: 200, 1000 and 3000 ppm
Result: Negative

Test Type: DNA damage and/or repair
Species: Rat
Application Route: inhalation (vapour)
Dose: 500, 1000 and 2000 ppm
Result: Negative

Carcinogenicity
Carcinogenicity - Assessment: Human Carcinogen.

IARC: Group 1: Carcinogenic to humans
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP: Known to be a human carcinogen.

Reproductive toxicity
No data available.

STOT-single exposure
Target Organs: Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 narcotic effects.

STOT-repeated exposure
No data available.

Aspiration hazard
No data available.

Additional information
Symptoms of overexposure may be headache, dizziness, tiredness, nausea, and vomiting.
Concentrations substantially above the TLV value may cause narcotic effects.
Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity
Toxicity to fish
LC50 (Jordanella floridae (Flagfish)): 28.3 mg/l
Exposure time: 96 h
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates
(Scenedesmus subspicatus (Chodat)): 20.8 mg/l
Exposure time: 48 h
Test Type: Static Test

Toxicity to algae
EC50: 36.5 mg/l
End point: Growth rate
Exposure time: 72 h

Chronic aquatic toxicity assessment: Harmful to aquatic life with long lasting effects.

Persistence and degradability
No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

Endocrine disrupting properties
No data available.

Other adverse effects
Ozone-Depletion Potential: Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B)

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Dispose of in accordance with all applicable local, state and federal regulations.

Packaging disposal
Empty product containers may have product residues. Dispose of containers in accordance with all applicable local, state, and federal regulations.

Waste treatment
No data available.

Sewage disposal
No data available.

Other disposal recommendations
No data available.

SECTION 14: Transport information

DOT (US)
UN Number: UN1710
Class: 6.1
Packing Group: III
Proper Shipping Name: Trichloroethylene
Reportable quantity (RQ): 100 lbs

IMDG
UN Number: UN1710
Class: 6.1
Packing Group: III
EMS Number: F-A, S-A
Proper Shipping Name: Trichloroethylene

IATA
UN Number: UN1710
Class: 6.1
Packing Group: III
Proper Shipping Name: Trichloroethylene

SECTION 15: Regulatory information

15.1 Safety, health, and environmental regulations specific for the product in question

California Prop. 65 components
WARNING: This product can expose you to chemicals including Trichloroethylene, which is/are known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Chemical name: TRICHLOROETHYLENE (CAS number: 79-01-6)
04/01/1988 - Cancer
01/31/2014 - Developmental toxicity
01/31/2014 - Male reproductive toxicity

CERCLA Reportable Quantity
Chemical name: TRICHLOROETHYLENE (CAS number: 79-01-6)
Component RQ: 100 lbs
Calculated Product RQ: 101 lbs

WHMIS Classification
D2A: Very Toxic Material Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards
Skin corrosion or irritation

Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity

SARA 302
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313
The following components are subject to reporting levels established by SARA Title III, Section 313:
Trichloroethylene (CAS: 79-01-6)

CWA (Clean Water Act)
The following hazardous substances are listed under the Clean Water Act, Section 311, Table 116.4A:
Trichloroethylene (CAS: 79-01-6)

The following hazardous substances are listed under the Clean Water Act, Section 311, Table 117.3:
Trichloroethylene (CAS: 79-01-6)

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307.

Clean Air Act
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):
TRICHLOROETHYLENE (CAS: 79-01-6)

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemicals are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489): TRICHLOROETHYLENE (CAS: 79-01-6)

U.S. State Right To Know Components

Product	California	Massachusetts	New Jersey	New York	Pennsylvania	Rhode Island
Trichloroethylene	Listed	Listed	Listed	Listed	Listed	Listed

International Inventories

Product	TSCA	DSL /NDSL	EINECS /ELINCS	ENCS	IECSC	PICCS	AICS	NZIoC	TW	KECI
Trichloroethylene	Present	Present	Present	Present	Present	Present	Present	Present	Present	Present

Legend
X – Not present on list
TSCA – United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL – Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS – European Inventory of Existing Chemical Substances or European List of Notified Chemical Substances
ENCS – Japanese ENCS (Existing & New Chemical Substances) Inventory
IECSC – Inventory of Existing Chemicals Substances Produced or Imported in China (IECSC)
PICCS – Philippines Inventory of Chemicals and Chemical Substances
AICS – Australian Inventory of Chemical Substances)
NZIoc – New Zealand Inventory of Chemicals
TW – Taiwan National Chemical Inventory
KECI – Korean Existing Chemicals Inventory

Authorization/Restrictions According To EU REACH

Component	REACH (1907/2006) – Annex XIV – Substances Subject to Authorization	REACH (1907/2006) – Annex XVII – Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 – Candidate List of Substances of Very High Concern (SVHC)
Trichloroethylene	Carcinogen Category 1B Article 57 Application Date: October 21, 2014 Sunset Date: April 21, 2016 Exemption - None	Use restricted. See item 28. (see link for restriction details) Use Restricted. See item 75. (see link for restriction details)	SVHC Candidate list – 201-167-4 – Carcinogen, Article 57a

15.2 Chemical Safety Assessment
No data available.

HMIS Rating

TRICHLOROETHYLENE	
HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating

SECTION 16: Other information

16.1 Further information/disclaimer
The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical resources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

16.2 Preparation information
Sources of key data used to compile the Safety Data Sheet: Internal technical data, data from raw material SDSs, EPA CompTox Chemical Dashboard (comptox.epa.gov), EPA Substance Registry Services (SRS), OSHA Occupational Chemical Database (https://www.osha.gov/chemicaldata), OSHA 29CFR 1910.1200 Hazard Communication (https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200), European Chemicals Agency (ECHA) C&L Inventory Database (echa.europa.eu), CAMEO Chemicals (cameochemicals.noaa.gov), Code of Federal Regulations CFR Title 49 (https://www.ecfr.gov/current/title-49), California Proposition 65 (https://www.p65warnings.ca.gov/), California Proposition 65 List (https://oehha.ca.gov/proposition-65/proposition-65-list), National Library of Medicine (https://pubchem.ncbi.nlm.nih.gov/), TSCA Chemical Substances Inventory

(https://www.epa.gov/tsca-inventory/how-access-tsca-inventory), OECD eChem Portal Search Results (https://www.echemportal.org/echemportal/substance-search).