

SAFETY DATA SHEET

in accordance with Globally Harmonized System of Classification of Chemicals

No.U-0970GHS-03

Identity (As Used on Label and List)

Revised Date: May 23, 2012

Prepared Date: December 22, 2008

TRICHLOROETHYLENE

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance or preparation

Product name: TRICHLOROETHYLENE

Chemical name: Trichloroethylene

1.2 Use of the substance/preparation

Solvent

1.3 Company/undertaking identification

Manufacturer's Name

ASAHI GLASS Co., Ltd.

Address

1-5-1, Marunouchi, Chiyoda-ku, Tokyo 100-8405, Japan

Telephone Number for Information

+81-3-3218-5574

Facsimile Number for Information

+81-3-3218-7845

2. HAZARDS IDENTIFICATION

Application of the classification rules in GHS

PHYSICAL HAZARDS

Flammable liquid	not classified
Self-reactive substances and mixtures	not classified
Pyrophoric liquid	not classified
Corrosive to metals	not classified

HEALTH HAZARDS

Acute toxicity(oral)	Not classified
Acute toxicity(Dermal)	Not classified
Skin corrosion and irritation	Category 2
Serious eye damage and eye irritation	Category 2A
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1B
Reproductive toxicity	Category 1B
Specific target organ systemic toxicity after single exposure	Category 3

Specific target organ systemic toxicity after repeated exposure	Category 1
Aspiration toxicity	Category 2

HAZARDOUS TO THE AQUEOUS ENVIRONMENT

Acute	Category 2
Chronic	Category 2



Signal word : Danger

Hazard statement

- Causes skin irritation.
- Causes serious eye irritation.
- Suspected of causing genetic defects.
- May cause cancer.
- May damage fertility or the unborn child.
- May cause respiratory irritation.
- May cause drowsiness or dizziness.
- Causes damage to organs.
- May be fetal if swallowed and enters airway.
- Toxic to aquatic life.
- Toxic to aquatic life with long lasting effects.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components

CAS-No	Name	% Weight
79-01-6	Trichloroethylene	>99

4. FIRST-AID MEASURES

- **Inhalation:**
 Remove the victim from the contamination immediately to fresh air and keep the victim warm and quiet. Obtain medical attention immediately.
 If breathing is weak, irregular or has stopped, loosen his collar and belt and administer artificial respiration.
- **Skin Contact:**
 Remove all contaminated clothing, shoes and socks from the affected areas as quickly as possible, cutting them off if necessary.
 Wash the affected area with plenty of water using a mild soap or a detergent for skin.
 If irritation persists, obtain medical attention immediately.
- **Eye Contact:**
 Immediately flush eyes with running water at least 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention immediately.

- **Ingestion:**
DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomits
Keep an unconscious person the patient in the lateral position in the transportation.
Obtain medical attention immediately.

5. FIRE-FIGHTING MEASURES

- **Suitable extinguishing media:** Use media appropriate for surrounding fire and/or materials. Dry chemical powder, form or carbon dioxide. No self-combustibility.
- **Unsuitable extinguish media/methods:** none
- **Hazardous combustion product or gases:** Hydrogen chloride, phosgene.
- **Special protective equipment for fire fighters:** Fire fighters should use pressure-demand self contained breathing apparatus due to possible exposure to hydrogen chloride and phosgene gases.
- **Additional Information:** Shut off fuel to fire if possible to do so without hazard. Vapors concentrated in a confined or poorly-ventilated area can be ignited upon contact with a spark, flame or high-intensity source of heat. This can occur at concentrations in air of approximately 8-10.5%.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Ensure adequate ventilation.

Unprotected personnel should move upwind of spill. Evacuate non essential personnel.

Only personnel equipped with proper respiratory and skin/eye protection should be permitted in area.

Environmental precautions:

Shut off source of ignition and ventilate spill area.

Do not wash away into shower or waterway.

Take precautions as necessary to prevent contamination of ground and surface waters.

Methods for cleaning up/taking up:

Sweep up to avoid slipping hazard and dispose of in accordance with applicable regulations.

Recover or absorb spilled material on sawdust or vermiculite and sweep into closed containers for disposal.

Additional information:

Information for safe handling looks up chapter 7.

Information for disposal looks up chapter 13.

7. HANDLING AND STORAGE

Handling

In doors, use with sufficient ventilation to keep employee exposure below recommended limits.

Avoid leak, overflow and dispersal. Prevent form vapor.

In case of chance exposure to this substance wear suitable protective glove, eye protection and respiratory equipment. Keep upwind of work area.

Do not allow product to contact open flame or electrical heating elements because dangerous decomposition products may form.

Keep container tightly closed when in not use.

Waste fluid takes up and place in closed containers for disposal.

Use floor material which is able to prevent soil infiltration. To avoid cracks of floor.

Mechanical ventilation should be used in low places because vapor is 4.5 times as heavy as air.

Storage

Store in cool, dry, well –ventilated location. Keep away from sunlight.

Keep container tightly closed.

Prevent spills from entering sewers, watercourses or low areas.

Use floor material which is able to prevent soil infiltration.

Build roof or cover by vinyl sheet in the case of storage container in an outdoor location.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Ingredients with occupational exposure limits to be monitored

Ingredient name: Trichloroethylene

OSHA (1993): PEL-TWA: 100ppm; (Acceptable Ceiling Concentration); 200ppm; (5mins in any 2h); 300ppm

ACGIH (2007) TLV-TWA: TLV-TWA: 10ppm, A2; STEL, 25ppm

Exposure controls

occupational exposure controls

Engineering Controls:

Local exhaust ventilation required.

Personal protection:

- **Respiratory Protection:** A NIOSH/MSHA approved air-supplied respirator for concentrations of trichloro-ethylene above 500 ppm.
- **Eye Protection:** Use chemical safety goggles when there is potential for eye contact.
- **Skin protection:** Impervious gloves

Other protection: If need, protective clothing and rubber boot should be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance and Odour:** Clear, colorless liquid with mild, ethereal odour.
- **Boiling Point:** 87.2deg.C
- **Flash Point (Method Used):** No flash obtained when tested in usual manner
- **Flammable Limits:** 10.5vol% (in the air at 100deg.C) UEL; 41.0 vol%(in the air at 100deg.C)
- **Specific Gravity (H₂O = 1):** 1.465
- **Vapour Pressure:** 7.7kPa (20deg.C)
- **Melting Point:** -86.2 deg.C
- **Vapour Density (Air = 1):** 4.53
- **Evaporation Rate (Ethyl ether = 1):** 0.28
- **Solubility in Water:** 0.11 g/100ml water (20deg.C)

10. STABILITY AND REACTIVITY

Conditions to avoid: Open flames, hot glowing surfaces, or electric arcs.

Stability: Stable

Materials to avoid (Incompatibilities): May react violently with alkali and alkaline earth metals such as sodium, potassium and barium. Avoid mixing with caustic soda, caustic potash, or oxidizing materials.

Hazardous decomposition products: Hydrogen chloride, phosgene.

Risk of flash and explosion in the case of contact high energy igniters or oxygen in concentrated amount atmosphere. May form toxicity gases by decomposition.

The substance decomposes on contact with strong alkali producing dichloroacetylene, which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

11. TOXICOLOGICAL INFORMATION

Health Hazardous (Acute and Chronic):

Animal Data:

- LD50 (oral, rat) = 3670 mg/kg
- LD50 (oral, mouse) = 2402 mg/kg
- LC50 (inhalation, mouse) = 8450 ppm for 4 hours

Mutagenicity Data:

- Ames Assay : negative
- Chromosome Aberration: negative

Carcinogenicity

- NTP: N/E
- IARC Monographs: 2A
- ACGIH: A5
- EU:3
- OSHA Regulated: N/E

This substance causes cancer in mice, and there is no evidence that it is a carcinogen in rats. Humans exposed to this substance have not been studied well enough to give much information.

The epidemiological human studies report that it is not clear whether this substance causes cancer. (But you should treat this substance as a likely cause of human cancer.)

Other information

The most famous symptom of acute intoxication is narcotic action. Many fatal accidents were reported. Repeated exposure can damage the liver and kidneys.

Irritating to skin because this substance can dissolve your skin's natural protective oils.

Frequent or prolonged skin contact can cause irritation and dermatitis (skin rash), with dryness, redness, flaking, and cracking of the skin.

Though this substance can be absorbed into the body slowly through healthy skin.

12. ECOLOGICAL INFORMATION

Biodegradability: BOD 2.4%

Bioaccumulation: Bio concentration factor: <17/6weeks

Fish Toxicity:

guppy LC50(7days) 55ppm,

fathead minnow LC50 (48h) 53.3mg/l (running water)

fathead minnow LC50 (96h) 40.7mg/l (running water)

fathead minnow LC50 (48h) 66.8mg/l (still water)
killifish LC50 (48h) 59mg/l

Other information

The life time in the air : 0.018year (estimation)
Global warming potential (CFC11= 1) : <0.001 (estimation)

13. DISPOSAL CONSIDERATIONS

Contaminated sawdust, vermiculite or porous surface must be disposed of in a permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination.

Comply with national and local regulations

Do not dump this product into sewers, on the ground or into any body of water.

14. TRANSPORT INFORMATION

Land transport (ADR/RID):

UN: 1710

Proper Shipping Name: TRICHLOROETHYLENE

Class: 6.1

Packing Group: III

Sea transport (IMDG 29th amendment!):

UN: 1710

Proper Shipping Name: TRICHLOROETHYLENE

Class: 6.1

Packing Group: III

Marine pollutant: YES

Air transport (ICAO/IATA, edition 2003):

UN: 1710

Proper Shipping Name: TRICHLOROETHYLENE

Class: 6.1

Packing Group: III

15. REGULATORY INFORMATION

Ensure this materials in compliance with federal requirements and ensure conformity to local regulation.

Other information

Classification

- **EEC Classification:** Xi(irritant); R36/38 (Irritating to eyes and skin)
Hazard symbol: T (Toxic)
Risk phrases: R45-36/38-52/53-67(May cause cancer.)-(Irritating to eyes and skin.)-(Harmful to aquatic organisms, may cause long-term adverse effects in aquatic environment.)-(Vapours may drowsiness and dizziness.)

Safety phrases: S53-45-61(Avoid exposure- obtain special instructions before use.)-(In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible))-Avoid release to the environment. Refer to special instructions/ safety data sheet.)

Regulations

TSCA Status: This product is listed on the TSCA Inventory

Council Directive 92/32/EEC Status: 201-167-4

16. OTHER INFORMATION

N/D: no data

N/A: not applicable

N/E: not established

MAK: maximum workplace concentration

ACGIH: American Conference of Governmental Industrial Hygienists

Changes were made in sections: Section 1(2011.10), 14(2012.05)

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