**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

1.1 Product identifier

**Trade name** Trichloroacetic acid

**Stock number:** A11156

**CAS Number:** 76-03-9

**EC number:** 200-927-2

**Index number:** 807-004-00-7

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

**Identified use:** SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

**Manufacturer/Supplier:** Alfa Aesar

Avocado Research Chemicals, Ltd.

Shore Road

Port of Heysham Industrial Park

Heysham Lancashire LA3 2XY

United Kingdom

Office Tel: +44 (0) 1524 850506

Office Fax: +44 (0) 1524 850608

Email: uktech@alfa.com

www.alfa.com

**Informing department:** Product safety department.

1.4 Emergency telephone number:

Call Carechem 24 at +44 (0) 1865 407333 (English only); +44 (0) 1235 239670 (Multi-language)

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**SECTION 2: Hazards identification**

2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008**

- **GHS05 corrosion**
  - **Skin Corr. 1A H314** Causes severe skin burns and eye damage.

- **GHS09 environment**
  - **Aquatic Acute 1 H400** Very toxic to aquatic life.
  - **Aquatic Chronic 1 H410** Very toxic to aquatic life with long lasting effects.

**Other hazards that do not result in classification No information known.**

2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008** The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms**

- **GHS05 GHS09**

**Signal word** Danger

**Hazard statements**

H314 Causes severe skin burns and eye damage.

**Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair). Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

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**SECTION 3: Composition/information on ingredients**

3.1 Substances

**CAS# Designation:** 76-03-9 Trichloroacetic acid

**Identification number(s):** EC number: 200-927-2

**Index number:** 807-004-00-7

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**SECTION 4: First aid measures**

4.1 Description of first aid measures

**General information** Instantly remove any clothing soiled by the product.

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

**After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing** Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

- Causes severe skin burns
- Causes serious eye damage

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.
SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
- Carbon monoxide and carbon dioxide
- Hydrogen chloride (HCl)
- Phosgene gas

5.3 Advice for firefighters
Protective equipment:
- Wear self-contained breathing apparatus.
- Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up:
Use neutralizing agent. Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation.

6.4 Reference to other sections
See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handle under dry protective gas. Keep containers tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires: No information known.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: No special requirements.

Information about storage in one common storage facility:
- Store away from water.
- Store away from strong bases.
- Store away from oxidising agents.

Further information about storage conditions:
- Store under dry inert gas.
- This product is hygroscopic.
- Keep container tightly sealed.
- Store in cool, dry conditions in well sealed containers.
- Protect from humidity and keep away from water.
- Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
Components with critical values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: No data

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment.

Breathing equipment: Use breathing protection with high concentrations.
Recommended filter device for short term use:
- Use a respirator of type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:
Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves: Butyl rubber, BR
Penetration time of glove material (in minutes) Not determined

Eye protection:
Tightly sealed safety glasses.

Full face protection

Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General information
Appearance:
- Crystalline
- Colourless
- Acrid
- Odour threshold: Not determined

pH-value (900 g/l) at 20 °C: <1

Change in condition
Melting point/Melting range: 54-58 °C
Boiling point/Boiling range: 196 °C
### SECTION 10: Stability and reactivity

10.1 Reactivity No information known.
10.2 Chemical stability State: Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions Reacts with strong oxidising agents.
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials: Water/moisture, bases, oxidising agents.
10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide (HCl), phosgene.
10.7 thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

### SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

LD/LC₅₀ values that are relevant for classification: No data.

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effect known.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutagenicity data for this substance.

Carcinogenicity: ACGIH A3: Animal carcinogen; Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

Reproductive toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

### SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Ecotoxicity:

- Remark: Very toxic for fish.

General notes:

- Do not allow product to reach ground water, water bodies or sewage system.
- Water hazard class 2 (Assessment by list): hazardous for water.
- Danger to drinking water if even small quantities leak into soil.
- Also poisonous for fish and plankton in water bodies.
- May cause long lasting harmful effects to aquatic life.
- Avoid transfer into the environment.
- Very toxic for aquatic organisms.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

### SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation: Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.

Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.
Recommended cleaning agent: Water, if necessary with cleaning agent.

**SECTION 14: Transport information**

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### 14.2 UN proper shipping name

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<td>TRICHLOROACETIC ACID</td>
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### 14.3 Transport hazard class(es)

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#### ADR

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#### IMDG, IATA

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### 14.5 Environmental hazards:

Environmentally hazardous substance, solid

### 14.6 Special precautions for user

Warning: Corrosive substances.

#### Kemler Number:

80

#### EMS Number:

F-A, S-B

#### Segregation groups

Acids

### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

#### Transport/Additional information:

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#### ADR

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<td>1 kg</td>
<td>2</td>
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</table>

UN "Model Regulation":

UN1839, TRICHLOROACETIC ACID, 8, II

**SECTION 15: Regulatory information**

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Australian Inventory of Chemical Substances: Substance is listed.
- Standard for the Uniform Scheduling of Drugs and Poisons: Substance is listed.

#### National regulations

- Information about limitation of use:
  - Employment restrictions concerning young persons must be observed.
  - For use only by technically qualified individuals.
- Classification according to VbF: Not applicable
- Water hazard class: Water hazard class 2 (Assessment by list); hazardous for water.
- Other regulations, limitations and prohibitive regulations
  - ELINCS (European List of Notified Chemical Substances): Substance is not listed.
  - Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: Substance is not listed.
  - The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
  - Annex IV of the REACH Regulations (requiring Authorisation for use): Substance is not listed.
  - Annex XIV of the REACH Regulations (requiring Authorisation for use): Substance is not listed.

### 15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Abbreviations and acronyms:**

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
- VfH: Verordnung über flüssige Stoffe (Vfls, Liquid Substance Regulation, Austria)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- vPvB: very Persistent and very Bioaccumulative
- ACGIH: American Conference of Governmental Industrial Hygienists (USA)
- OSHA: Occupational Safety and Health Administration (USA)
- NTP: National Toxicology Program (USA)
- IARC: International Agency for Research on Cancer
- EPA: Environmental Protection Agency (USA)