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

1.1. Product identifier

Product Description: Trichloroisocyanuric acid
Cat No.: 421540000; 421540010; 421542500
Synonyms: 1,3,5-Trichloro-1-triazine-2,4,6(1H,3H,5H)-trione; Symclosene
CAS-No: 87-90-1
EC-No.: 201-782-8
Molecular Formula: C3 Cl3 N3 O3

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

Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

1.3. Details of the supplier of the safety data sheet

Company
UK entity/business name: Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

EU entity/business name: Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

E-mail address: begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No. US: 001-800-424-9300 / Europe: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Oxidizing solids Category 2 (H272)

Health hazards
SAFETY DATA SHEET

Trichloroisocyanuric acid

Revision Date 21-Dec-2020

2.2. Label elements

Signal Word

Danger

Hazard Statements

H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H410 - Very toxic to aquatic life with long lasting effects
EUH031 - Contact with acids liberates toxic gas

Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxicity to Soil Dwelling Organisms
Toxic to terrestrial vertebrates

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>EC-No.</th>
<th>Weight %</th>
<th>CLP Classification - Regulation (EC) No 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td>87-90-1</td>
<td>EEC No. 201-782-8</td>
<td>97</td>
<td>Ox. Sol. 2 (H272)</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Trichloroisocyanuric acid

Revision Date 21-Dec-2020

Acute Tox. 4 (H302)
Eye Irrit. 2 (H319)
STOT SE 3 (H335)
Aquatic Acute 1 (H400)
Aquatic Chronic 1 (H410)

Component Specific concentration limits (SCL’s) M-Factor Component notes

<table>
<thead>
<tr>
<th>Component</th>
<th>Specific concentration limits (SCL’s)</th>
<th>M-Factor</th>
<th>Component notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td>-</td>
<td>10</td>
<td>-</td>
</tr>
</tbody>
</table>

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact  
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact  
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention. Take off contaminated clothing and shoes immediately.

Ingestion  
Clean mouth with water. Get medical attention.

Inhalation  
Remove from exposure, lie down. Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Self-Protection of the First Aider  
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

No information available.

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

Notes to Physician  
Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media  

Extinguishing media which must not be used for safety reasons  
No information available.

5.2. Special hazards arising from the substance or mixture

Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.). Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products  
Nitrogen oxides (NOₓ), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen chloride gas.
SAFETY DATA SHEET

Trichloroisocyanuric acid

Revision Date  21-Dec-2020

5.3. Advice for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation.

6.2. Environmental precautions
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up
Sweep up and shovel into suitable containers for disposal. Do not let this chemical enter the environment. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections
Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling
Avoid contact with skin and eyes. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Do not store near combustible materials. Store under an inert atmosphere.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)
Class 5.1B

7.3. Specific end use(s)
Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters
 Exposure limits
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies
Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific
regulatory bodies

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of
exposure to chemical and biological agents.
MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL)  No information available

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Acute effects (local)</th>
<th>Acute effects (systemic)</th>
<th>Chronic effects (local)</th>
<th>Chronic effects (systemic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration  No information available.
(PNEC)

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the
workstation location.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or
equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to
control hazardous materials at source

Personal protective equipment

Eye Protection  Goggles (European standard - EN 166)

Hand Protection  Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td></td>
</tr>
<tr>
<td>Butyl rubber</td>
<td>recommendations</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin and body protection  Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g.
sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger
of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection  When workers are facing concentrations above the exposure limit they must use
appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used
and maintained properly

Large scale/emergency use  Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

ACR42154
are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143

**Small scale/Laboratory use**

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls**

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Powder Solid</td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>White</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Odorless</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Melting Point/Range</strong></td>
<td>245 - 251 °C / 473 - 483.8 °F</td>
</tr>
<tr>
<td><strong>Softening Point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Boiling Point/Range</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability (liquid)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Flammability (solid,gas)</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Explosion Limits</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Autoignition Temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Decomposition Temperature</strong></td>
<td>225 °C</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Water Solubility</strong></td>
<td>12 g/L (25°C)</td>
</tr>
<tr>
<td><strong>Partition Coefficient (n-octanol/water)</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Density / Specific Gravity</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Bulk Density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Particle characteristics</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>

**Method -** No information available

### 9.2. Other information

- **Molecular Formula:** C3 Cl3 N3 O3
- **Molecular Weight:** 232.41
- **Oxidizing Properties:** Oxidizer
- **Evaporation Rate:** Not applicable - Solid

**SECTION 10: STABILITY AND REACTIVITY**

### 10.1. Reactivity

Yes

### 10.2. Chemical stability

Stable under normal conditions, Hygroscopic, Oxidizer: Contact with combustible/organic material may cause fire.
10.3. Possibility of hazardous reactions

Hazardous Polymerization: No information available.
Hazardous Reactions: No information available.

10.4. Conditions to avoid

Incompatible products. Exposure to moist air or water. Excess heat. Combustible material.

10.5. Incompatible materials


10.6. Hazardous decomposition products


SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

Oral: Category 4
Dermal: Based on available data, the classification criteria are not met
Inhalation: Based on available data, the classification criteria are not met

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td>LD50 = 406 mg/kg (Rat)</td>
<td>LD50 &gt; 2000 mg/kg (Rabbit)</td>
<td>LC50 &gt; 5.25 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory: No data available
Skin: No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3
Results / Target organs: Respiratory system.

(i) STOT-repeated exposure; No data available
Target Organs: No information available.
SAFETY DATA SHEET

Trichloroisocyanuric acid

Revision Date 21-Dec-2020

(j) aspiration hazard; Not applicable
Solid

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed No information available.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td>LC50: 0.13 - 0.5 mg/L, 96h static (Lepomis macrochirus)</td>
<td>EC50: 0.16 - 0.18 mg/L, 48h Static (Daphnia magna)</td>
<td>EC50: = 0.21 mg/L, 48h (Daphnia magna)</td>
</tr>
<tr>
<td></td>
<td>LC50: 0.06 - 0.11 mg/L, 96h static (Oncorhynchus mykiss)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Microtox</th>
<th>M-Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

Persistence Soluble in water, Persistence is unlikely, based on information available.

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

12.4. Mobility in soil The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties Endocrine Disruptor Information

12.7. Other adverse effects Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

ACR42154
13.1. Waste treatment methods

Waste from Residues/Unused Products
Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging
Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC)
According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information
Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number
UN2468

14.2. UN proper shipping name
TRICHLOROISOCYANURIC ACID, DRY

14.3. Transport hazard class(es)
5.1

14.4. Packing group
II

ADR

14.1. UN number
UN2468

14.2. UN proper shipping name
TRICHLOROISOCYANURIC ACID, DRY

14.3. Transport hazard class(es)
5.1

14.4. Packing group
II

IATA

14.1. UN number
UN2468

14.2. UN proper shipping name
TRICHLOROISOCYANURIC ACID, DRY

14.3. Transport hazard class(es)
5.1

14.4. Packing group
II

14.5. Environmental hazards
Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user
No special precautions required

14.7. Maritime transport in bulk according to IMO instruments
Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories
X = listed. Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (KECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td>201-782-8</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-3410</td>
</tr>
</tbody>
</table>

ACR42154
Not applicable

National Regulations

WGK Classification

<table>
<thead>
<tr>
<th>Component</th>
<th>Germany - Water Classification (VwVwS)</th>
<th>Germany - TA-Luft Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloro-S-triazinetrione</td>
<td>WKG2</td>
<td></td>
</tr>
</tbody>
</table>

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects
EUH031 - Contact with acids liberates toxic gas

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
SAFETY DATA SHEET

Trichloroisocyanuric acid

Chemical incident response training.

Creation Date 07-Jun-2010
Revision Date 21-Dec-2020
Revision Summary Update to CLP Format.


Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet