3-Chloroaniline

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

Product Description: 3-Chloroaniline
Cat No.: A12019
Synonyms: 3-Chlorobenzenamine
CAS-No: 108-42-9
Molecular Formula: C6 H6 Cl N
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

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

E-mail address: uktech@alfa.com
www.alfa.com
Product Safety Department

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

SECTION 2. HAZARD IDENTIFICATION

Physical State: Liquid
Appearance: Light brown
Odor: Characteristic

Emergency Overview:
Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled. May cause damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects. Sensitivity to light. Air sensitive.

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Oral Toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute Dermal Toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute Inhalation Toxicity - Vapors</td>
<td>Category 3</td>
</tr>
<tr>
<td>Specific target organ toxicity - (repeated exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Acute aquatic toxicity</td>
<td>Category 1</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label Elements
Signal Word  Danger

**Hazard Statements**
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

**Precautionary Statements**
**Prevention**
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P284 - Wear respiratory protection
**Response**
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/ physician
P330 - Rinse mouth
P361 - Remove/Take off immediately all contaminated clothing
P363 - Wash contaminated clothing before reuse
**Storage**
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
**Disposal**
P501 - Dispose of contents/ container to an approved waste disposal plant

**Physical and Chemical Hazards**
None identified.

**Health Hazards**
Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled. May cause damage to organs through prolonged or repeated exposure.

**Environmental hazards**
Very toxic to aquatic life with long lasting effects. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>m-Chloroaniline</td>
<td>108-42-9</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

**SECTION 4. FIRST AID MEASURES**

**General Advice**
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**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 plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. 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. Immediate medical attention is required.

Ingestion
Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects
No information available.

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.

Notes to Physician
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

Specific Hazards Arising from the Chemical
Do not allow run-off from fire fighting to enter drains or water courses. Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters
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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

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. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not
ingest. Do not breathe vapors or spray mist.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Keep away from direct sunlight.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Exposure Controls

Engineering Measures
Use only under a chemical fume hood. 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 recommendations</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td></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>

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.

Skin and body protection
Long sleeved clothing

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 are exceeded or if irritation or other symptoms are experienced
**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

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

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.
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

Appearance
Light brown

Physical State
Liquid

Odor
Characteristic

Odor Threshold
No data available

pH
7.3

Melting Point/Range
-11 °C / 12.2 °F

Softening Point
No data available

Boiling Point/Range
230 °C / 446 °F

Flash Point
118 °C / 244.4 °F

Evaporation Rate
No data available

Flammability (solid,gas)
Not applicable

Explosion Limits
No data available

Vapor Pressure
0.1 mbar @ 20 °C

Vapor Density
No data available

Specific Gravity / Density
1.200

Bulk Density
Not applicable

Water Solubility
6.8 g/L (20°C)

Solubility in other solvents
No information available

Partition Coefficient (n-octanol/water)
No information available

Component
m-Chloroaniline

log Pow
1.88

Autoignition Temperature
500 - °C / 932 - °F

Decomposition Temperature
190 °C

Viscosity
No data available

Explosive Properties
No information available

Oxidizing Properties
No information available

Molecular Formula
C6 H6 Cl N

Molecular Weight
127.57

SECTION 10. STABILITY AND REACTIVITY

Stability
Sensitivity to light. Air sensitive.

Hazardous Reactions
None under normal processing.

Hazardous Polymerization
Hazardous polymerization does not occur.

Conditions to Avoid

Materials to avoid
Strong oxidizing agents.

Hazardous Decomposition Products

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

(a) acute toxicity:

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>m-Chloroaniline</td>
<td>LD50 = 256 mg/kg (Rat)</td>
<td>LD50 = 250 mg/kg (Rat)</td>
<td>LC50 = 0.783 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>
(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(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; No data available

(i) STOT-repeated exposure; Category 2
   Target Organs None known.

(j) aspiration hazard; No data available

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

Symptoms / effects, both acute and delayed No information available

SECTION 12. ECOLOGICAL INFORMATION

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
<th>Microtox</th>
</tr>
</thead>
<tbody>
<tr>
<td>m-Chloroaniline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Danio rerio: LC50=18.75 mg/L 96h Leuciscus idus: LC50=14 mg/L 96h</td>
<td>EC50=0.35 mg/L 48h</td>
<td></td>
<td>EC50 = 12.5 mg/L 5 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EC50 = 13.4 mg/L 15 min</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EC50 = 14.0 mg/L 30 min</td>
</tr>
</tbody>
</table>

Persistence and Degradability
   Persistence Not readily biodegradable
   Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential Bioaccumulation is unlikely

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
</table>

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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.

Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors.

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

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.

Other Information
Do not dispose of waste into 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

Road and Rail Transport
UN-No 2019
Proper Shipping Name CHLOROANILINES, LIQUID
Hazard Class 6.1
Packing Group II

IMDG/IMO
UN-No 2019
Proper Shipping Name CHLOROANILINES, LIQUID
Hazard Class 6.1
Packing Group II

IATA
UN-No 2019
Proper Shipping Name CHLOROANILINES, LIQUID
Hazard Class 6.1
Packing Group II

Special Precautions for User
No special precautions required.

SECTION 15. REGULATORY INFORMATION

International Inventories X = listed

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12266 - 2012</th>
<th>Taiwan Toxic Chemical Substances Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
</table>
SECTION 16. OTHER INFORMATION

Prepared By: Health, Safety and Environmental Department
Creation Date: 20-Sep-2010
Revision Date: 19-Mar-2018

Training Advice:
Chemical incident response training.

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
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
PNEC - Predicted No Effect Concentration
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data:
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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