

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 12/20/2007

Reviewed on 02/12/2007

**1 Identification of substance:****Product details:****Product name:** 4-Chloroaniline**Stock number:**

A12879

L03201

**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department.

After normal hours call Chemtrec at (800) 424-9300.

**2 Composition/Data on components:****Chemical characterization:****Description: (CAS#)**

4-Chloroaniline (CAS# 106-47-8): 100%

**Identification number(s):****EINECS Number:** 203-401-0**EU Number:** 612-137-00-9**3 Hazards identification****Hazard description:**

T Toxic

N Dangerous for the environment

**Information pertaining to particular dangers for man and environment**

R 45 May cause cancer.

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 43 May cause sensitization by skin contact.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	3
FIRE	1
REACTIVITY	1

Health (acute effects) = 3

Flammability = 1

Reactivity = 1

**4 First aid measures****General information**

Immediately remove any clothing soiled by the product.

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Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately 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 a doctor.

**After swallowing**

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

**5 Fire fighting measures****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Nitrogen oxides (NO<sub>x</sub>)

Hydrogen chloride (HCl)

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

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**Information about protection against explosions and fires:**

Keep ignition sources away.

**Storage****Requirements to be met by storerooms and receptacles:**

No special requirements.

**Information about storage in one common storage facility:**

Store away from oxidizing agents.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**8 Exposure controls and 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.

**Components with limit values that require monitoring at the workplace:**

4-Chloroaniline

mg/m3

Austria Carcinogen (skin)

Poland TWA 3; 10-STEL

Switzerland MAK-W Carcinogen (skin)

**Components with limit values that require monitoring at the workplace:****Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

**Breathing equipment:**

Use suitable respirator when high concentrations are present.

**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

Impervious gloves

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Crystalline Chips
<b>Color:</b>	Light Tan

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<b>Odor:</b>	Not determined
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	69-71°C (156-160°F)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined
<b>Flash point:</b>	Not applicable
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Danger of explosion:</b>	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure:</b>	Not determined
<b>Density at 20°C (68°F):</b>	1.429 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with Water:</b>	Soluble

**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:** Oxidizing agents**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Nitrogen oxides

Hydrogen chloride (HCl)

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	100 mg/kg (bwd)
		350 mg/kg (gpg)
		100 mg/kg (mus)
		237 mg/kg (qal)
		300 mg/kg (rat)
Dermal	LD50	239 mg/kg (cat)
		3200 mg/kg (rat)
		360 mg/kg (rbt)
Inhalative	LC50/4H	2340 mg/m <sup>3</sup> /4H (rat)
Irritation of skin	mild	500 mg/24H (rbt)
Irritation of eyes	severe	250 µg/24H (rbt)

**Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.

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**on the eye:** Irritating effect.**Sensitization:** Sensitization possible through skin contact.**Other information (about experimental toxicology):**

Tumorigenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Mutagenic effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - convulsions or effect on seizure threshold.

Behavioral - muscle weakness.

Behavioral - somnolence (general depressed activity).

Behavioral - muscle contraction or spasticity.

Behavioral - aggression.

Behavioral - altered sleep time (including change in righting reflex).

Blood - other hemolysis with or without anemia.

Blood - methemoglobinemia-carboxyhemoglobin.

Blood - changes in erythrocyte (RBC) count.

Blood - tumors.

Blood - other changes.

Kidney, Ureter, Bladder - other changes in urine composition.

Skin and Appendages - primary irritation (after topical exposure).

Lungs, Thorax, or Respiration - dyspnea.

Lungs, Thorax, or Respiration - cyanosis.

Lungs, Thorax, or Respiration - other changes.

Lungs, Thorax, or Respiration - respiratory depression

Endocrine - tumors.

Liver - tumors.

Vascular - tumors.

Tumorigenic - carcinogenic by RTECS criteria.

Tumorigenic - neoplastic by RTECS criteria.

Tumorigenic - equivocal tumorigenic agent by RTECS criteria.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Danger through skin absorption.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

**12 Ecological information:****Ecotoxicical effects:****Remark:** Very toxic for fish**General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

USA

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## 13 Disposal considerations

**Product:****Recommendation**

Consult state, local or national regulations to ensure proper disposal.

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

## 14 Transport information

**DOT regulations:**

**Hazard class:** 6.1  
**Identification number:** UN2018  
**Packing group:** II  
**Proper shipping name (technical name):** CHLOROANILINES, SOLID  
**Label:** 6.1

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** 6.1 (T2) Toxic substances  
**Danger code (Kemler):** 60  
**UN-Number:** 2018  
**Packaging group:** II  
**Description of goods:** 2018 CHLOROANILINES, SOLID

**Maritime transport IMDG:**

**IMDG Class:** 6.1  
**UN Number:** 2018  
**Label:** 6.1  
**Packaging group:** II  
**Proper shipping name:** CHLOROANILINES, SOLID

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 6.1  
**UN/ID Number:** 2018  
**Label:** 6.1  
**Packaging group:** II

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**Proper shipping name:** CHLOROANILINES, SOLID**15 Regulations****Product related hazard informations:****Hazard symbols:**

T Toxic  
N Dangerous for the environment

**Risk phrases:**

45 May cause cancer.  
23/24/25 Toxic by inhalation, in contact with skin and if swallowed.  
43 May cause sensitization by skin contact.  
50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Safety phrases:**

53 Avoid exposure - obtain special instructions before use.  
45 In case of accident or if you feel unwell, seek medical advice immediately.  
60 This material and its container must be disposed of as hazardous waste.  
61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.  
All components of this product are listed on the Canadian Domestic Substances List (DSL).

**Information about limitation of use:**

For use only by technically qualified individuals.  
This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**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 MSDS:** Health, Safety and Environmental Department.  
**Contact:** Paul V. Connolly