OTTO CHEMIE PVT LTD

201, 51-53 Maroo Bhavan, Kalbadevi, Mumbai – 400002, India. Tel : + 91 22 2207 0099 / 6638 2599
Email : info@ottokemi.com, Web : www.ottokemi.com

----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

1.Identification
1.1GHS Product identifier
4-Chloro-2-nitroaniline, 99%
Code C 2131

2.Hazard identification
2.1Classification of the substance or mixture
Acute toxicity - Oral, Category 2
Acute toxicity - Dermal, Category 1
Acute toxicity - Inhalation, Category 2
Specific target organ toxicity \u2013 repeated exposure, Category 2
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2
2.2GHS label elements, including precautionary statements
Pictogram(s)

Signal word	Danger
Hazard statement(s)	H300 Fatal if swallowed
	H310 Fatal in contact with skin
	H330 Fatal if inhaled
	H373 May cause damage to organs through prolonged or repeated exposure
	H411 Toxic to aquatic life with long lasting effects
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling.
	P270 Do not eat, drink or smoke when using this product.
	P262 Do not get in eyes, on skin, or on clothing.
	P280 Wear protective gloves/protective clothing/eye protection/face protection.
	P260 Do not breathe dust/fume/gas/mist/vapours/spray.
	P271 Use only outdoors or in a well-ventilated area.
	P284 [In case of inadequate ventilation] wear respiratory protection.
	P273 Avoid release to the environment.
Response	P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/\u2026
	P321 Specific treatment (see ... on this label).
	P330 Rinse mouth.
	P302+P352 IF ON SKIN: Wash with plenty of water/...
	P310 Immediately call a POISON CENTER/doctor/\u2026
	P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
	P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P320 Specific treatment is urgent (see ... on this label).
	P314 Get medical advice/attention if you feel unwell.
	P391 Collect spillage.
Storage	P405 Store locked up.
	P403+P233 Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification
none

3.Composition/information on ingredients
3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4-Chloro-2-nitroaniline	4-Chloro-2-nitroaniline	89-63-4	none	100%

4.First-aid measures
4.1Description of necessary first-aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2Most important symptoms/effects, acute and delayed
SYMPTOMS: Exposure to this material can cause local irritation, headache, cyanosis, jaundice, methemoglobinemia, weight loss, anemia, weakness and irritability. ACUTE/CHRONIC HAZARDS: This chemical is a skin irritant and an allergen. It can be absorbed through the skin and upon inhalation of dust. Toxic fumes are evolved when this material is heated to decomposition or upon contact with acid or acid fumes.
4.3Indication of immediate medical attention and special treatment needed, if necessary
Absorption, Distribution and Excretion
The disposition and metabolism of 14C-labeled 4-chloro-2-nitroaniline (CNA) was studied in male F344 rats following oral or intravenous (iv) administration. The gastrointestinal absorption of CNA was found to be near complete and was not affected by the dose in the range studied (0.788-78.8 mumol/kg). Following either oral or iv administration, CNA was rapidly distributed throughout the tissues and showed no marked affinity for any particular tissue. [14C]CNA was rapidly cleared by metabolism and excretion in urine and to a lesser extent in feces...

5.Fire-fighting measures
5.1Extinguishing media
Suitable extinguishing media
If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources.
5.2Specific hazards arising from the chemical
This compound is probably combustible.
5.3Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures
6.1Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
6.2Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3Methods and materials for containment and cleaning up
Prevent product from entering drains. Sweep up and shovel into suitable containers for disposal.

7.Handling and storage
7.1Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.
7.2Conditions for safe storage, including any incompatibilities
Keep containers tightly closed in a cool, well-ventilated place.

8.Exposure controls/personal protection
8.1Control parameters
Occupational Exposure limit values
no data available
Biological limit values
no data available
8.2Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
8.3Individual protection measures, such as personal protective equipment (PPE)
Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Respiratory protection
Wear dust mask when handling large quantities.
Thermal hazards
no data available

9.Physical and chemical properties

Physical state	yellow to orange crystalline powder
Colour	Orange crystals
Odour	no data available
Melting point/ freezing point	116\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	71\u00b0C/2.3mmHg(lit.)
Flammability	no data available
Lower and upper explosion limit / flammability limit	no data available
Flash point	64\u00b0C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:INSOLUBLE
Partition coefficient n-octanol/water (log value)	log Kow = 2.72
Vapour pressure	4.85X10-4 mm Hg at 25\u00b0C (wat)
Density and/or relative density	1.494g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

10.Stability and reactivity
10.1Reactivity
no data available
10.2Chemical stability
Stable under recommended storage conditions.
10.3Possibility of hazardous reactions
4-CHLORO-2-NITROANILINE forms explosive products on reaction with nitric acid. Can react with oxidizing agents.
10.4Conditions to avoid
no data available
10.5Incompatible materials
In a large scale-up of the method for preparing 4-chloro-2,6-dinitroaniline by reacting nitric acid with 4-chloro-2-nitroaniline, an unexpected strong evolution of heat was experienced. The exotherm was found due to the simultaneous formation of two explosive products: the isomer 2-chloro-4,6-dinitroaniline & also 4-chloro-3,6-dinitrophenyldiazonium-2-oxide.
10.6Hazardous decomposition products
When heated to decomposition ... emits toxic vapors of /nitrogen oxides and hydrogen chloride/.

11.Toxicological information
Acute toxicity
Oral: LD50 Rat oral 400 mg/kg
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation
no data available
Serious eye damage/irritation
no data available
Respiratory or skin sensitization
no data available
Germ cell mutagenicity
no data available
Carcinogenicity
no data available
Reproductive toxicity
no data available
STOT-single exposure
no data available
STOT-repeated exposure
no data available
Aspiration hazard
no data available

12.Ecological information
12.1Toxicity
Toxicity to fish: no data available
Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea, age 6-24 hr); Conditions: freshwater, static, 20\u00b0C, pH > or =7.0; Concentration: 3700 ug/L for 24 hr
Toxicity to algae: no data available
Toxicity to microorganisms: no data available

12.2Persistence and degradability
AEROBIC: 4-Chloro-2-nitroaniline, present at 100 ppm, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 ppm and the Japanese MITI test(1).
12.3Bioaccumulative potential
A 6 week bioconcentration study obtained BCF values of 7.5-13.2 and 8.0-13.4 in carp (Cyprinus carpio) for concentrations of 4-chloro-2-nitroaniline of 100 and 10 ppb, respectively(1). According to a classification scheme(2), these BCF values suggest bioconcentration in aquatic organisms is low(SRC).
12.4Mobility in soil
The Koc of 4-chloro-2-nitroaniline is estimated as 720(SRC), using a log Kow of 2.72(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 4-chloro-2-nitroaniline is expected to have low mobility in soil. Anilines are expected to bind strongly to humus or organic matter in soils due to the high reactivity of the aromatic amino group(4,5), suggesting that mobility may be much lower in some soils(SRC). The log Koc of 4-chloro-2-nitroaniline was measured as 2.30 in Yangtze river sediment (37.1% sand, 49.3% silt, 13.6% clay, 1.28% organic carbon, pH 7.44)(6). The log Koc was also measured as 3.68 in modified clay(7). These values give Koc values of 200 and 4800, respectively(SRC).
12.5Other adverse effects
no data available

13.Disposal considerations
13.1Disposal methods
Product
The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
Contaminated packaging
Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information
14.1UN Number
ADR/RID: UN2237 IMDG: UN2237 IATA: UN2237
14.2UN Proper Shipping Name
ADR/RID: CHLORONITROANILINES
IMDG: CHLORONITROANILINES
IATA: CHLORONITROANILINES
14.3Transport hazard class(es)
ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1
14.4Packing group, if applicable
ADR/RID: III IMDG: III IATA: III
14.5Environmental hazards
ADR/RID: yes IMDG: yes IATA: yes
14.6Special precautions for user
no data available
14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
no data available

15.Regulatory information
15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
4-Chloro-2-nitroaniline	4-Chloro-2-nitroaniline	89-63-4	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Section 16: Other Information
This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.